Fish Technology news letter

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

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FISH TECHNOLOGICAL EXPERIMENT STATION
C.F.T.R.I.
23.6.80
MANGALORE

Summer Institute on Fish Processing Technology

Mr. S. Gopalan (left), Chairman, Marine Products Export Development Authority (MPEDA), addressing the valedictory meeting. Next to him: Messers C. Cherian, President of the Sea Food Exporters' Association of India, G. K. Kuriyan, Director, CIFT and P. V. Prabhu, Scientist - in - Charge of the Summer Institute.

FOREWORD

We are reviving the publication of FISH TECHNOLOGY NEWSLETTER. The object of the publication is to keep the Fishery Industry in the country acquainted with some of the more important advances in Fishery Technology resulting from the investigations carried out at the CIFT and elsewhere.

'If development is the goal, technology is the tool. Technology is mankind's main enterprise today. And we cannot escape from its accelerating effect and massive impact on our outlook, life-style and social, cultural, political and economic structures'.

Today, Fishing and Fish Processing Industry in India are in the threshold of a major revolution. The Technology for fishing and fish processing is available indigenously, thanks to the pioneering investigations undertaken and achievements made by the Scientists and Technocrats of the CIFT

But, of late, it has been stressing the need for giving a rural bias to Science and Technology in the country. The aim is to set Science and Technology within the framework of national policies for the transformation of the entire socio-economic life of the people

The National Development Council has endorsed a triple objective for the VIth Five Year Plan, namely, working towards full employment, eradication of poverty and creation of a more equal society. These social objectives will have to be achieved through a massive thrust in agriculture and rural development along with progress in other sectors.

The current fish production is estimated to be of the order of 2.4 million tonnes, comprising of 1.53 million tonnes marine fish and 0.87 million tonnes of of fresh water fish. By the end of the Sixth Plan fish production is likely to reach a level of 3.4 million tonnes, 2.2 million tonnes from the sea and 1.2 million tonnes from inland water sources. The three Central Fisheries Research Institutes of I. C. A. R. will continue to consolidate their programmes into more and more production—oriented projects.

The researcher and scientist discover the material facts about a resource or a project. News of that discovery has to be published and disseminated to interested parties in order that action might be taken in developments. And it will be the prime function of this publication to disseminate the information which can spur into action the practical fishermen in the various roles needed to secure action and development.

All kinds of contributions that will aid in the advancement of the Industry are welcome. Additional information in the form of reports dealing with fisheries and related subjects, news clips, feature articles etc. in non—scientific language would also be useful.

G. K. KURIYAN
Director, C. I. F. T.

SUMMER INSTITUTE ON FISH PROCESSING TECHNOLOGY

Tremendous developments have been taken place in the field of fishing and fish processing Industry of the country during the last two decades. The part played by the Central Institute of Fisheries Technology (CIFT) in this regard is quite commendable. The technology for fishing and fish processing is now made available indigenously, thanks to the pioneering investigations carried out and achievements made by the Scientists and technocrats of the CIFT.

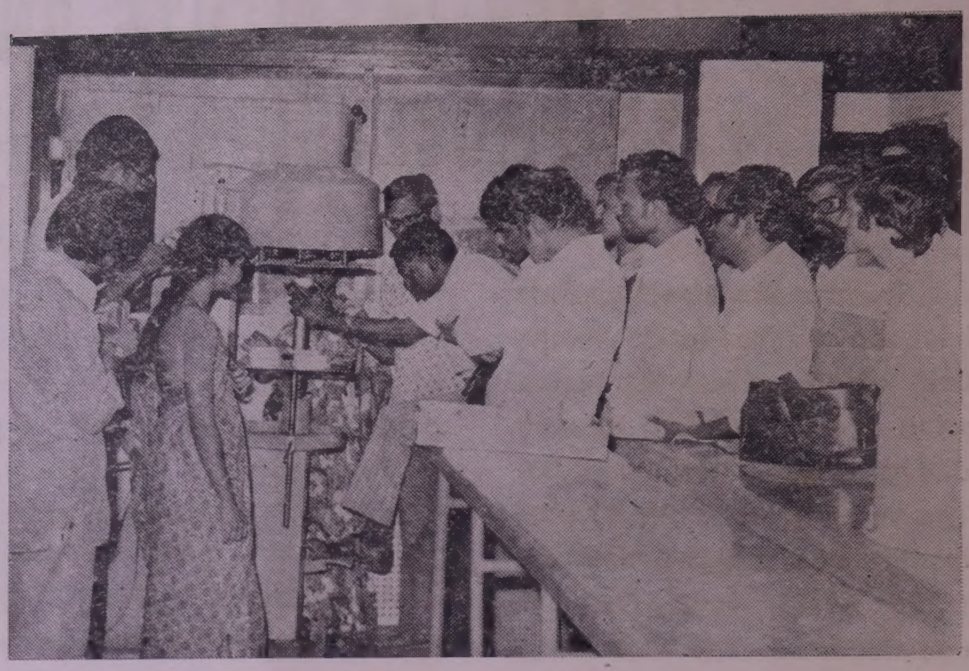
Fish Processing Industry in India made the beginning and expansion simultaneous with the progress acheived in fishing sector. It commands a pivotal role in the export earning of the country.

With the recent declaration of 200 mile Economic Zone the Govt of India is taking up an ambitious plan for the over all development of fishery activities in the country. It does not require any special mention that those responsible for implementing these development activities should be having first hand knowledge in the latest developments all over in the respective fields of activities. So also in the case of those who are engaged in the profession of teaching. Realising the magnitude of the problem, the Indian Council of Agricultural Research (ICAR) sponsored a month long Summer Institute on Fish Processing Technology at CIFT, Cochin

This summer Intstitute, the first of its kind designed and conducted by the CIFT in the fish processing fields, was one of the 22 Summer Institutes proposed to be conducted by the ICAR on various branches of agriculture this year. It was formally inagurated by State Fisheries Director, Mr.S.N. Rao on 1 May, 1978. In his inagural address Mr. Rao stressed the importance of diversifying the Fishery Industry in the country. Till recently shrimp was the major exporting fish product, he pointed out. But the declaration of the 200 mile economic zone had been added great responsibility in the sphere of activities of every body connected with it, he said.

Mr. S. N. Rao (left), Director,
Kerala State Fisheries, Inagurating the Summer Institute.

Twenty participants including representatives from Fishery departments of Kerala, Tamilnadu and Gujarath, Andhra-Predesh Fisheries Development Corporation, Agricultural Universities of Karnataka, Avinashilingam Home Science College for women, BRD Post graduate College, Deonia (M P), Marine products Export Development Authority, Central Instituts of Fisheries Education, Bombay, Integrated Fisheries Project, Cochin and CIFT attended the Summer Institute.



Part of Canning operation

Mr. S Gopalan, Chairman, Marine Products Export Development Authority (MPEDA), presided over the valedictory function which held on May, 31 and distributed certificates to the participants.

Need of the day

Addressing the gathering Mr. Gopalan said the need of the day was adding the availability of the fishery resources for which two important methods had to be adopted—going for newer and newer grounds for exploitation and avoiding the phenominal rates of wastage.

One of the ways he suggested for improving the resources was deep sea fishing. But in India "we have practically done nothing in this field which requires big capital investment. Considerable large scale investment may have to come from various sources. Naturally, the Govt agencies have to play a predominant role in this field. Our policy regarding deep sea fishing still remains in a fluid stage" he said.

Apart from deep sea fishing another method he suggested for increasing our resources was improved types of gears. Mr. Gopalan congratulated the Central Institute of Fisheries Technology for having played a major role in this regard. "I understand that the method of purse-seine is widely adopted in many parts of Karnataka for which the CIFT has been largely responsible". He hoped that the Institute would take initiative to introduce more and more saphisticated gears to improve the fish catches in the country.

Fish Culture

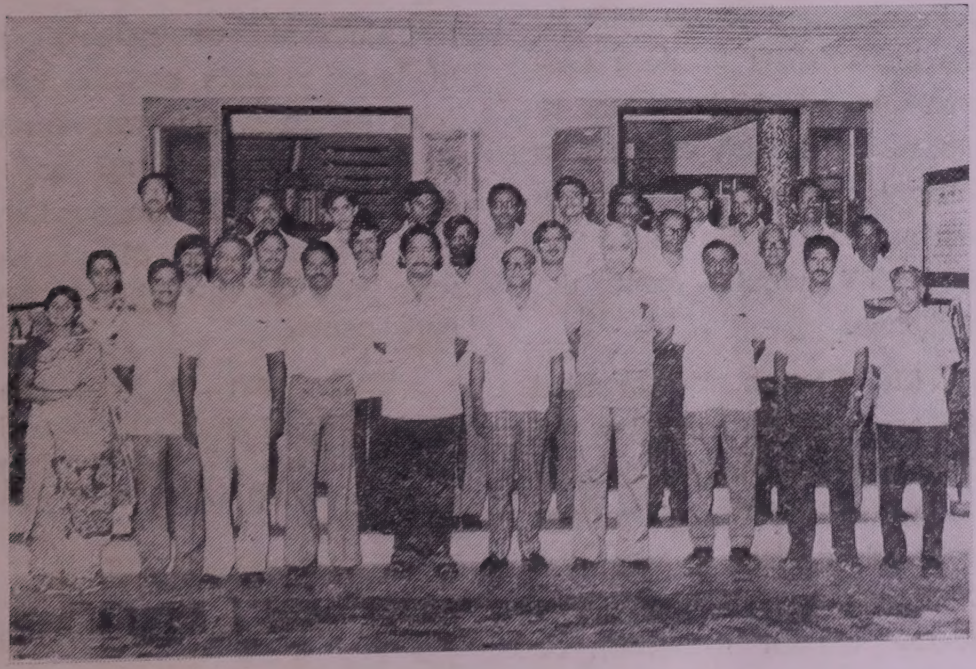
Another method he suggested to improve the raw materials was fish culturing. Referring to the implementation of a co-operative venture taken by the Central Marine Fishery. Research Institute (CMFRI) CIFT and MPEDA, Mr. Gopalan said, "It is nothing but a step forward of the traditional practice that was going on in the country; a little more sophisticated".

Citing so many problems confronted with in this regard

he explained: "we have to decide the stocking materials, collect the materials from where it is available and the problem of Scientific conditions of control." Various institutions engaged in Research and Development had taken up this method. 'Yet I am not convinced that we have not plugged all the loop holes. First of all we should ourselves convince whether we have perfected the system. A lot more yet to be done in the way to perfection."

Mr. S. Ayyappan Pillai, Scientist, explaining the freeze dryer operation

Mr. Gopalan said that conclusions and findings could not be expected to by fooll-proof perfection. There fore, to a certain extent some "gambling" had to be done. This could only be possible if people with resources came forward. Mr. Gopalan called upon the processors and exporters to comeforward in the matter of shrimp culture as a co-operative venture between themselves and various agencies. They should work out programme for the next 10 to 25 years in consultation with the trade and Industries, taking into consideration of the problems of the actual farmers. Mr. Gopalan suggested that there should be considerable fund from the MPEDA resources for more fruitful results. "This is my Personal view", he added.



Participants and distinguished guests after the valedictory meeting

Emphasising the need of avoiding wastage, Mr. Gopalan pointed out that 15 to 20 percent of wastage occured in catching and processing Many

of the vessels going on to the sea for the exploitation of fishery resources did not carry ice. While there were very many processors and exporters willing to provide ice in the fishing vessels, people engaged in fishing were reluctant to carry it with the vessels. "This is not a welcome feature" he remarked.

Wastage could accur at the primary level of processing too. Mr. Gopalan, therefore, emphasised the need of intensive Extension work

Under Utilization

Mr. Gopalan pointed out the built-up capacity in processing and storing available in the country was still under utilized. "In what way are we going to avail of this under utilized capacity", he asked, According to him these under utilized capacities should be diversified.

He suggested that the available infra-structure facilities should be utilized for expansion of internal markets. These internal markets had to be streamlined, because we were not getting fish catches all over the month in a year. Therefore, it was high time to think in terms of freezing and preserving some of the materials for future distribution during lean months.

In his valedictory address Mr. C. Cherian, President of the Seafood Exporters' Association of India said a time had reached when people had to think in terms of our products making available to our own people. This was imperative when the country was facing accute mal nuetrition among a large section of the population. Therefore, he suggested every effort should be made to make available protein-rich fish products to the interior parts of the country for consumption. Adequate attention should be bestowed upon the processing and preservation of fish, he said.

New Breathing

With a highly fluctuating foreign market the export industry had become extremely vulnerable and it was time for the Industrialists to do a new breathing of shifting over to processing of fish whether for internal market or for external market, he said He hoped that the CIFT would meet the challenge.

Mr. Cherian commended the services rendered by the CIFT in giving timely assistance to the Idustries through general technical advice. It was the CIFT which introduced the quality control inspection of marine products in India. The processors and exporters found their solace when they faced technological problems, he added.

Mr. P. V. Prabhu, Scientist in-Charge of the summer Institute presented the report. Apart from lectures on various aspects of fish processing technology by experts in the relevant fields, practicals and demonstrations were also arranged to acquaint the participants with the methods of estimation of proximate composition of fish, estimation of spoilage indices, estimation of mercury, staining of bacteria associated with fish spoilage etc, the report said.

The participants carried out experiments in filleting and freezing of fish, canning of Tuna, mussel and crab meat, dehydration of fish using hot air dryer as well as solar dryer salting and sun drying of fish.

Methods of preparation of shrimp extracts and chitosan from prawn waste, rays from sharkfins, mapers and soup powder from misellaneous fish and freeze drying of prawn were also demonstrated to the participants,

Study tour to local fish processing establishments and fishery instututes, fish landing centres, curing yards was also conducted.

CIFT Director, Mr. G. K. Kuriyan welcomed the gathering and Mr. K. K Balachandran, Scientist, proposed vote of thanks. □

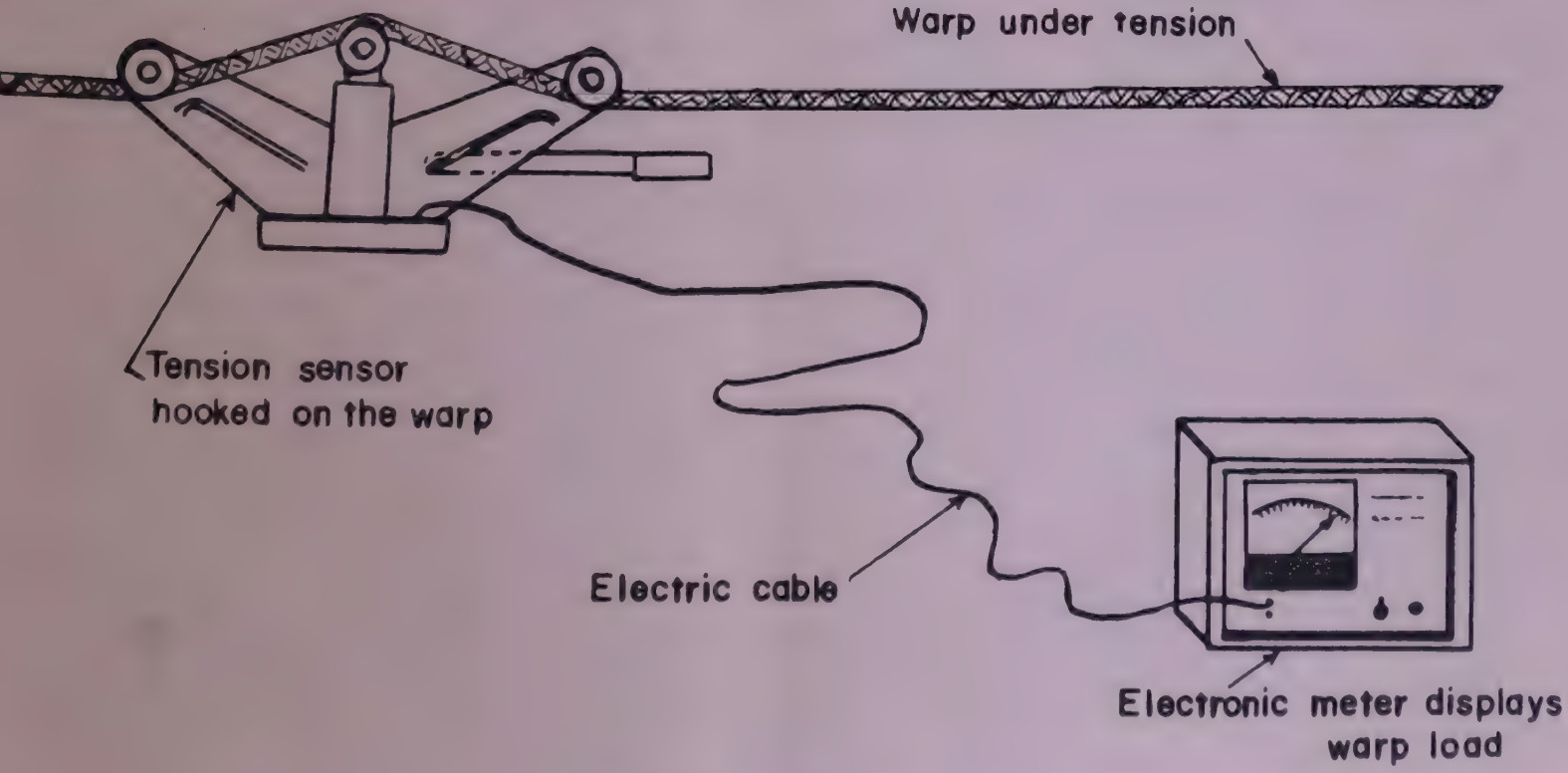
Portable Warp Load Meter for Fishing Trawlers

C.F.T.R.I. MANDALORE

The CIFT has developed a portable type Warp Load Meter for fishing trawlers. The instrument measures the load on the warps continuously and ensu es proper operation of the net and its accessories under water.

The trawl net and its accessories may undergo many malfunctioning and any such abnormalities are followed by change in warp load either upwards or downwards depending on the nature of failure. Cases like tornoff codend, improper mouth opening due to fouled net etc, cause decrease in warp load while ploughing of otter board in mud or entangling the net on the bottom cause an increase in load of the particular wire rope. If the wire ropes are not equally paid it will cause unequal distribution of load between the ropes All these defects are immediately shown in the instrument by way of a change in warp load (tension). The skipper can immediately find out the defects of the system and thus rectify it for saving the time, effort and money.

Though basically it is only a measurement of warp tension, usual warp tension meters cannot be used conveniently since both ends of the wire rope are engaged one side on the net and the other on the winch. The commercially available dial gauges or load cells



The figure shows the two parts of the warpload mete. The warp tension sensor is clipped on the warp and the electronic meter which displays the tension.

LARGE MESH DEMERSAL TRAWL HELPS INCREASED CATCH

The CIFT's Veraval Research Centre (Gujarat) has developed a new Demersal trawl. The newly developed Large Mesh Trawl of 32 m by head rope length is found more suitable and efficient for exploitation of demersal fishery resources off Veraval from medium size trawler of 15.2 m over all length with 165 h. p engine.

Increased catch with a proportionate increase of quality fishes and demersal species was obtained with the Large Mesh Demersal Trawl when compared with a standard bottom trawl of 32 m by head rope length.

As the total catch including the smaller varieties was also more in the Large Mesh Trawl than that of a conventional small mesh trawl, it is confirming the theory that the escapement through the front portion of a trawl net is insignificant and the net trapped fish do not swim through large meshes in the fore part of a trawl This indicates the possibility of increasing the mesh size of trawl nets in the fore part without affecting the total catch.

Covers large area

By increasing the mesh size in the fore part, the mouth area of the net can also be increased which enhances the fishing power by covering a large area per tow.

It is presumed that a large mesh trawl reduces the hydro-acoustic and pressure wave

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require the wire rope to be tied to their hooks on either sides. This can be done only either by cutting the rope or loosening and bending the rope. All such methods are extremely difficult and also require much manual lobour. Further, it can be done only by disturbing the routine operation of the trawl system. The machanical type warp tension meters are comparatively very inaccurate for the purpose and also require more labourers.

The electronic warp load meter shown in the figure weighs only about 3 kgs and can be easily clipped on the wire rope. The electronic display meter can be kept at a convenient remote place where it measures the tension accurately. If required, information can be fed to continuous rocorders also for further detailed studies.

Though primarily it was developed for fishing trawlers, it can be used at places where warp load on ropes are to be measured conveniently without disturbing the load system. It can be used for bollard tests of engines with permanent records on paper charts for detailed characteristic studies of the engine and the measurement of loads of crances etc The approximate cost of this fully indigenous instrument is Rs. 3500/— □

disturbances in the mouth of the net, which in turn produces less frightening effect on fish, and by increasing the rate of filtration through the net which would mean that fishes in the mouth area would have to swim faster to escape, increasing the catching efficiency.

Moreover, the new net is simple for construction and easy to maintain as it involves very less number of meshes.

The new net has only 1,45,450 meshes, whereas, a conventional small mesh net of same head rope length has 2,06,675 meshes. The new net has large meshes ranging from 150 mm to 150 mm, 100 mm in the fore part, while the conventional net has mesh sizes ranging only from 60 mm to 40 mm in the fore part.

The increase in catch per unit effort (CBUE) of the new net has been found as 2.7 times in the off shore waters (40 m and above depths) and 1.8 times in the inshore waters (less than 40 m depths) when compared with the conventioal small mesh net. Thus the new net has been found most efficient the offshore waters where quality demersal fishes are abundant. □

Wastage in Prawn Processing Industry

The main source of wastage in prawn processing Industry is spoilage. This was revealed by a study conducted by the CIFT during 1975-'77 in Cochin.

Some material (about 1% on an average) is estimated to be lost while washing and handling the meat.

Discolour and damage in the material, though did not form any wastage, were also found to occur. The spoilage was found to increase with the time lag between the time of catching and processing and also with the deficiency in icing, in general. The extent of wastage due to spoilage in peeling sheds and factories was (Figures expressed as percentage of raw material brought) :—

Year	1974	1975	1976	1977
Extent of spoilage (%)	0-12.5	0-35	0-3	0-4

As can be seen, considerable decrease in the extent of spoilage was observed from 1976 onwards. This was brought about by the vigilance on the part of processors. They started limiting the payment to processable material as a result of which the suppliers of raw material started giving increased attention to reduce spoilage.

Recovery of Different size grades

A study on the counts of whole prawn required for obtaining prawn meat of a specified size grade showed the following:—

To obtain mainly the size grade 200 / 300, 400 counts and less of *M. dobsoni* (Poovalan) or 300 counts of *P. stylifera* (Karikkadi) are to be used. For size grade 130/ 200, 300 counts and less of *M dobsoni* or less than 300 counts of *P. stylifera* are to be used. For cooked and peeled type of packing *M. dobsoni* 200—250 counts will give the size grade 130/ 300. For the size grade 300/ 500, 300—400 counts of the same species can be used. It is also found that from 300—400 counts of *P.stylifera*, cooked and peeled meat in the size grade 300 / 500 can be obtained. □

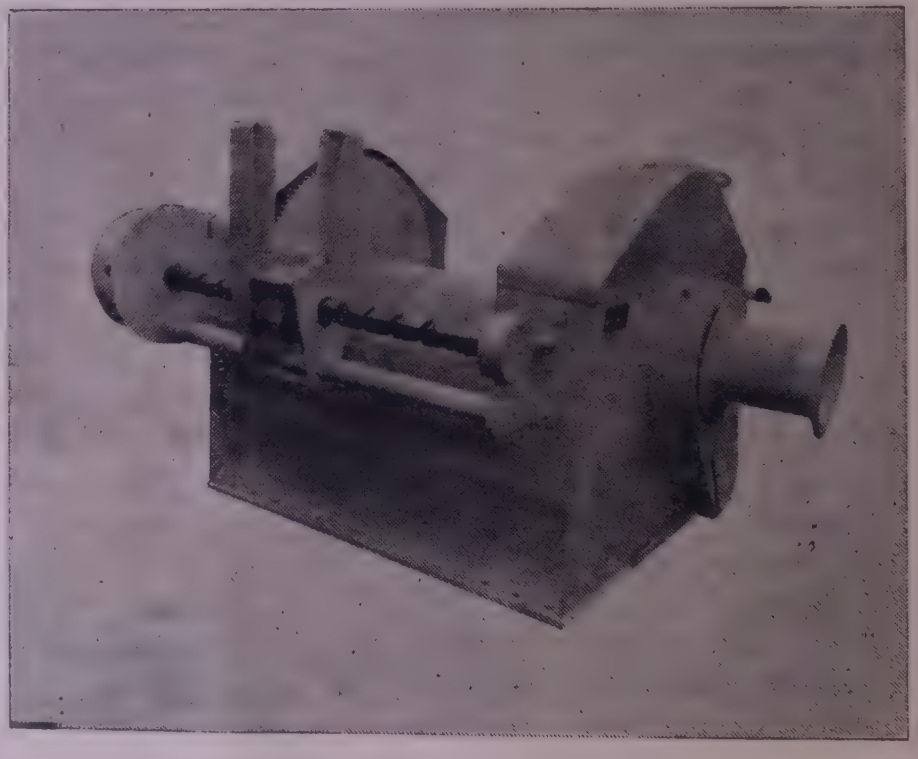
NEW 'TOUGH TRAWLER' WINCH INTRODUCED

SEATTLE — A new winch, named the "Tough Trawler", was recently introduced by Marine Construction & Design Co. (MARCO) for mid—size coastal trawlers of approximately 80 to 110 feet LOA and of up to 1,000 hp. "MARCO designed the Tough Trawler for boats that are fishing deeper and faster and using bigger nets than has been the case in recent years", noted John R. Logan, sales vice president for MARCO.

The new split — design winch (model WT202) has a large drum on which 1,000 fathoms of ¾" (19 mm) wire can be stored. At full drum, pull is 5 tons and maximum speed is 390 fpm (119 mpm).

A powerful external band brake on the winch can hold and break ¾" (19 mm) wire, at mid—drum. Controls for the brake, as well as for the clutch and main valve, can be local or remote. The winch is reversible. Options include a gypsy and an automatic diamond—screw levelwind.

Initial deliveries of winches are for trawlers being built in Chile, Uruguay, Oregon and California, reported Logan. □



NEW TRAWL WINCH FROM MARCO

The "Tough Trawler" — new MARGO hydraulic winch for mid-size coastal trawlers — stores 1,000 fathoms (1830 m) of ¾" (19 mm) wire.

Gleanings from other Journals

C.F.T.R.I. MANGALORE

Cement Coating Protects Steel from Corrosion

Corrosion is a common problem everywhere, but corrosion of steel reinforcement embeded in concrete is more serious because of the greater hazards it can cause. A survey conducted by the National Buildings Orginisation, New Delhi, and the Central Electro—chemical Research Institute, Karaikudi, revealed that reinforced concrete roofings and reinforced brick constructions failed prematurely because of corrosion. Studies conducted on a number of coastal bridges and structures have also shown that corrosion caused their deterioration within a short span of time.

Since corrosion of reinforcing steel is due primarily to the penetration of moisture, chloride and air, preventive methods must either block such penetration or render the reinforcement passive to their action. Various preventive methods such as water—impermeable surface coatings to concrete, metallic coatings on reinforcement and inhibitor additions to concrete have been suggested. Both concrete coating and metallic coating of reinforcement present difficulties; the former is not dependable and the latter is costly. inhibitor additions to cement slurry have been considered for economy and bonding characteristics. After various laboratory tests, a new protective coating to reinforcement, based on cement slurry and an inhibitor system, has been developed at the CECRI. The coating uses entirely indigenous raw materials. It can be applied by brushing, dipping or spraying. Brushing is easier and economical, though

The coating does not affect the bonding strength between the coated reinforcements and concrete. This was tested by conducting standard pull—out tests (in a 30—ton Avery Universal Testing Machine). While steel reinforcement without the coat showed an average bonding strength of 20kgs/sq cm. coated steel gave a value of 22 6 kg/sq. cm. Laboratory tests showed that the new coating resisted chloride, alkaline medium, sulphate and high temperature.

Field studies were also done at a number of sites in different climatic zones. Concrete cubes of 152.5 mm with embedded steel were used for such studies at Mandapam (Tamil Nadu), New Delhi, Jorhat, Bangalore, Bombay and Nagpur. The coating was used in various thicknesses and the cubes were exposed to the environment for one year to four years. Total protection with even a 13—mm coating was observed at places like Mandapam and Jorhat. A coating of 25 mm prevented corrosion at all the sites.

The new coating will be used in the pier and beams of the High Level Bridge across the Pamban Strait near

Questions & Answers

M/s. Seven Ceas Products, Madras

Q. We propose to start an Industry on making prawn powder and prawn pickles for which, we request you to help us in the technical side:

1. The way of removing the head and the shells
2. Processing till it gets powdered
3. Preservatives to be added
4. Type of cans (SR or AR)

A. Shell and head can be easily removed from prawns by hand. Wash the meat in good quality water and then cook in 3—5% salt solution for 3—5 mts depending on the size of prawns.

Dry the cooked meat under sun or in artificial dryer to a moisture content of 10%.

Powder in a pulveriser. The powder can be packed in polythene bags or cans (AR)

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the Remeswaram Island being built at an estimated cost of Rs. 5.3 crores. The bridge will use about 4,500 tons of steel. Being across the sea, it is subject to severe saline corrosion. In field scale, the coating per ton of steel reinforcement may cost Rs. 170 to Rs. 180 which is economical

Accelerated laboratory tests and field exposure studies at different places thus show that the new inhibited cement slurry coating can satisfactorily project steel reinforcement from corrosion both during storage and when laid in concrete under aggressive atmospheric conditions

— SCIENCE TODAY

ICAR to get 325 cr. in Sixth Plan

The Indian Council of Agricultural Research (ICAR) would get Rs 325 crores for research during the Sixth Plan, said Dr. L. M. Jaswani Assistant Director—General of ICAR

Dr. Jaswani said agriculture universities and other research agencies would participate in the research programme. The Council would also institute new operational research projects during the plan period.

The ICAR would lay emphasis on research on crops like oilseeds, pulses and cotton. For research on pulses 28 additional coordinating research centres would be set up. The ICAR would set up a National Research Institute for research on oilseeds. Research on cotton would be intensified at the Cotton Research Institute in Nagpur.

Under the Central Government's plan for rural development, the ICAR would take up research on particular crops in chosen tribal and rural areas in co—operation with the nearby agriculture universities.

The amount the ICAR got for research activities in 21 research institutes and 51 All—India Co—ordinated Project (for particular crops) during the Fifth Plan was Rs. 156 crores

— HINDU

Asst. Engineer, Minor Irrigation Sub Division, Cannanore

Q. We have undertaken a number of Minor irrigation works for prevention of saline intrusion in the coastal area of Cannanore District. The regulation of water flow is controlled by wooden as well as M.S. fabricated shutters. But these shutters frequently get damaged by saline water and marine borers. I request you to let me know the methods if any, for the protection of regulation shutters.

A Following protective measures are recommended against marine wood borers

1. Wooden gates and shutters have to be constructed out of seasoned and preservative treated wood. Copper —chrome—arsenic compound (Trade Name ASCU) at nearly 2 lb/C. ft loading under pressure

OR

Creosote oil at 20 lb/c.ft loading under pressure.

2. Sheath the existing gates & shutters with aluminium magnesium alloy plates of 22 SWG using aluminium nails.

3. Treated wooden reapers to be fixed on the existing wooden structures as a protective sheathing. Treatment same as under (1) above. Use Mango wood or Holdu wood 3" thick and 4—6" vide and at any desired length.

Dr. Suryanarayana Tripathy, Orissa

Q. I am an unemployed Veterinary graduate endeavouring to establish a fish meal plant at Bhubaneswar for self employment. Kindly send the necessary scheme for it and let me know the dealers of machionery to establish the plant in small scale.

A. The rotary drum dryer developed by this Institute for production of fish meal is only of ½ tonne capacity per day. A scheme based on the dryer is attached for your information. For plants of bigger capacity please contact any of the following firms.

1. M/s. Larsen & Toubro, I. C. House, Doughal Road, Ballard Estate, P. B. 278, Bombay—400001.

2. M/s. Gladwyn & Co., 251, Dr. D. Naroji Road, Bombay—400001.

3. M/s. C. A. Willner & Co., 15, Richmond Road, Bangalore—560025.

4. M/s. Transcendental Trading Team, 3,84, Todi Building, J. B. Nagar, Andheri East, Bombay—400069

5. M/s. Engineering and Allied Industries Corporation, 86, Chowringhee Road, Calcutta—700020.

6. M/s. Raylors' Metal Works, 293. Bellaris Road, Bombay—400008. □

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   Introduction to Chemical Engineering Thermodynamics.

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   ABC's of Electronic Test Probes.

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   Momentum, Heat and Mass Transfer

7. Pintauro (Nicholas).
   Food Additives to Extend Shelf Life - Food Technology Review No: 17

8. Gillies, M. T.
   Fish and Shell Fish Processing - Food Technology Review No: 22

9. Gutterson (Milton).
   Food Canning Techniques- Food Processing Review No: 26

10. Swaminath M. etc.
    Indo-Polish Industrial Fisheries Survey Along the North West Coast of India. Report No: 5

11. Exploratory Fisheries Project., Results of Exploratory survey around the Andaman Islands. Bull No: 7

12. Carter (Neal) M.
    Index and List of Titles- FRBC Bull. No: 164

13. Krausa (Krazna A) Ed.
    Focal Encyclopedia of Photography.

14. Clay (Clarence) & Medwin (Herman).
    Acoustical Oceanography: Principles and Applications.

15. Kadambi. V & Hutchinson F. W. Refrigeration.
    Air conditioning and Environmental control in India.

16. Kern (Donald) O.
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    Mass Transfer Operations.

18. Brophy (James J.).
    Basic Electronics for Scientists.

19. Smith J. M.
    Chemical Engineering Kineties.

20. Indian Standards Institution
    Specification for Crab Meat canned in Brine.
    IS: 7143—1973

21. Indian Standards Institution
    Specification for Frozen Silver Pomfret and Brown Promfret.
    IS: 4793—1968.

22. Indian Standards Institution
    Specification for Shark Liver oil for Veterinary use.
    IS: 3336—1955.

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I, K. C. Purushothaman, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/—
(K. C. PURUSHOTHAMAN)
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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

Please contact:

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Fish Technology news letter

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN – 682 029

Vol. 1 No. 2 August, 1978

CIFT
23.6.80

Training in filletting

CHEAP PROTEIN-RICH FOOD FOR KIDS

C.F.T.R.I. MANGALORE

Malnutrition and infectious diseases are responsible for 90% of deaths in children below the age of 6 years in developing countries. More than 100 million children in such countries fall victim to severe consequences of malnutrition, which adversely affect their subsequent growth and development, both physical and mental especially in those in the group 0-1 year. Mortality among children below 5 years is a serious problem facing our country, accounting for 40% of the total deaths, the corresponding figure for developed countries being only just 7%. The annual birth potential of our country is estimated to be 2.2 million and protein deficiency among children is alarmingly on the increase. Hence improvement in the nutritional status of young pre-school children is an urgent necessity which can be met by development of a food rich in protein. The protein advisory group (PAG) of the United Nations (UN) has strongly recommended promotion of special, low-cost nutritionally rich protein foods for vulnerable group in areas where milk and other supplementary protein resources are expensive/ in short supply for supplementing breast feeding.

Paediatrician Dr. Joy P. Chungath (sitting left) and CIFT scientist Dr. Gopakumar (sitting right) examining the results of feeding.

RICH SOURCES: India is gifted with a long coast line of 6190 km with annual marine fish landings of 1.53 million tonnes. An estimated 30% of the catches is composed of fishes of low economic value, the so called trash fishes, which constitute a rich source of protein of high biological value. The Central Institute of Fisheries Technology, Cochin, has developed a cheap, palatable and protein-rich powder from such fishes for pre-school children in collaboration with a paediatrician of a Government Hospital

in the city. The method consists in picking the edible meat from low fat fishes like Kilimin (Nemipterus japonicus) or jew fish (Sciaenids sp), cooking it for one hour in an equal quantity of water containing 0.5% acetic acid, cooling, decanting off the supernantant layer along with any separated fat, filtering through canvas cloth, washing the residue with cold water, pressing, drying to a moisture level of 6-8%, pulversing the dried cakes and sieving.

EXPERIMENT. The powder is made into a chutney with onion, coconut gratings, salt and spices and grinding to a pasty consistency in a mechanical grinder. Feeding experiments with this product were conducted at a Social Institute attached to a Home Science College in the city during November-December, 1977. The age of the children, drawn from the lower social strata varied from 1 to 5 years. Out of the 950 children originally screened, 800 were excluded as they were suffering from serious illness and major congenital defects, leaving 150 children for the study. 40 gm of the chutney containing approximately 20 gm proteins was fed to each child irrespective of age along with two slices of vitamins A & D and lysine enriched bread or a few pieces of cooked tapioca (Cassava). On alternate days, each child was also fed with one cup of a fish soup or a beverage containing cocoa, malt, sugar and fish hydrolysate, also formulated at CIFT. However, the net protein contents of the liquids were kept as low as possible so that their contribution to the total protein content of the supplementary feed for each child did not exceed one gram.

Most of the children selected for the study were from the economically backward classes.

Feeding was supplementary and not substitutory. Their parents were especially instructed not to make any reduction in the childrens normal intake of food at home. Feeding was

Man onboard and overboard:

Some safety rules

Today more fishing boats are out at sea and more human lives are involved in these operations. People who are put to sea in boats, irrespective of the size of the craft, operate in a hostile environment and work under hazardous conditions.

Fishing is carried out from big and small boats: in near-shore and off-shore waters, day in and day out, in fair and foul weather. May be, you are well equipped or ill-equipped.

The cry "Man Overboard" is one that strikes a certain chill and demands immediate and correct action.

Never have the attitude "Even if it does happen, I can stay afloat until boys pick me up".

Fish live in water, breathe in water and is ably adapted to live in sea temperatures. Human beings cannot breathe in it and do not have an indefinite survival time, even if they can stay afloat.

When you are onboard a trawler either as a crew or as a casual passenger, stay onboard, it is safer, may be in the cockpit or the wheel-house.

More passengers on deck means more problems and sometimes more serious.

Don't sit on the gunwale or guard rails. If you have to walk around on the deck, keep your wits about you and remember you are aboard a moving object

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conducted regularly for 35 days and the effect assessed periodically by measuring height. weight, head and mid-arm cirumferences. Most striking effects observed were gain in weight and mid-arm circumference. 35% of the children recorded weight increases ranging from 1 to 2.5 Kgs. 45% registered increases in mid-arm circumferences ranging from 0.5 to 1.5 cm. 10% of the children who happened to contract diseases like measles, whooping cough and asthma during the course of the experiment did not show any gain in weight.

The feeding trial was conducted at Vimalalayam, a social institute in Cochin

COURSE ON FILLETING AND FREEZING

A short term course on filleting and freezing of fish was conducted at CIFT, Cochin, in August, 1978. A good number of persons from processing factories participated in the three-day course.

Apart from training in filleting and freezing of different types of fish like cat fish, jew fish, catla etc., which are available in plenty in the state, the participants got acquainted with how to convert the remaining portion of fish into minced meat after separating the fillets.

The object of the course was to help the processors to produce diversified frozen products economically.

Inaugurating the course CIFT Director Mr. G. K. Kuriyan pointed out that the fish freezing industry in the country is entirely export-oriented and depending mainly on prawn freezing. "A considerable part of the freezer capacity remains idle because of the non-availability of prawn. Very often this situation leads to heavy loss to the processing industry", he said. A partial solution to this problem was to adopt freezing fish in the form of fillets, he added.

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whose motion you cannot always anticipate.

Don't stand up unless you have to but certainly not to obstruct the helmsman's view. May be you lose your balance and be a nuisance to others.

At the time of heavy rolling and pitching, it is better to attach yourself to the boat's structure by a line around your waist or a harness.

RESCUE MEASURES. If someone falls overboard, swing the stern of your boat away from the fallen victim.

Fix up with someone as look out and arrange to release any buoyant object in sight may be a live saving device. At night use your most powerful light.

Depending upon wind and sea conditions, position your craft to drift towards the fallen victim but more usual technique is to approach him into the wind, i. e. head to sea. Take care not to get him under your boat, lest your boat could strike him a nasty blow on the head. Shut the engine if need be and get a line to him as soon as you can.

If he is injured, exhausted or a poor swimmer, and you have capable assistance with you, send down a volunteer, with a life jacket and line attached to go overside and assist him inboard.

Recovery of the victim must be done with utmost care, hauling him inboard over the bow or stern to reduce the possibility of the boat becoming unstable. The boat with a transom platform is ideal for rescue, however, the most convenient would be the area with the least freeboard.

Keep your steering system in perfect condition:

steering chain, pulleys, steering wheel, rudder quadrant and the rudder components.

Frequently check your
navigational lights,
life saving appliances,
firefighting equipments
bilge pump, and
first aid kit.

Keep the boat, equipments and the crew always trim.

Conduct periodical drills.

"Prevention is not only better than cure, but also cheaper".

Electronic speed log for small and large fishing boats

The Central Institute of Fisheries Technology, Cochin, has developed a speed log for continuous measurement of the speed of motion of boats. The instrument can be used in small boats with side mountings by means of a supporting pole or can be permanently installed in the hull of all types of large and small vessels belonging to the prescribed speed range.

The instrument has got a hydrodynamic speed transducer and an electronic meter, both being connected by a 2-cone cable. The transducer is kept immersed in water for sensing the speed of the boat either temporarily by means of a pole with the transducer mounted on it as shown in fig: 1 or permanently by fixing the same on the hull of the boat or ship as shown in fig. 2. The speed signals from the transducer is displayed in the meter in terms of speed of the boat, after necessary amplification and processing.

Photograph of the electronic speed log showing the side mounting type transducer and the display meter.

The design of the transducer is such that it alighnes itself to the direction of water flow due to the hydrodynamic force acting on it. Transducer designed for hull mounting allows easy installation with minimum fittings on the hull. It is mounted on the hull through a single hole of 25 mm diameter. The hole can also be kept sealed in case the transducer is to be removed for some reason, by means of a 25 mm copper pipe with necessary provisions for sealing.

The transducer will be mounted fairly at the middle of the vessel at either one of the sides so that a good streamlined water flow is obtained around it. The sensing probe is projected out only 65 mm and it does not cause any inconvenience for the vessel. The probe can be easliy fitted with water tight sealing. The permanently mo-

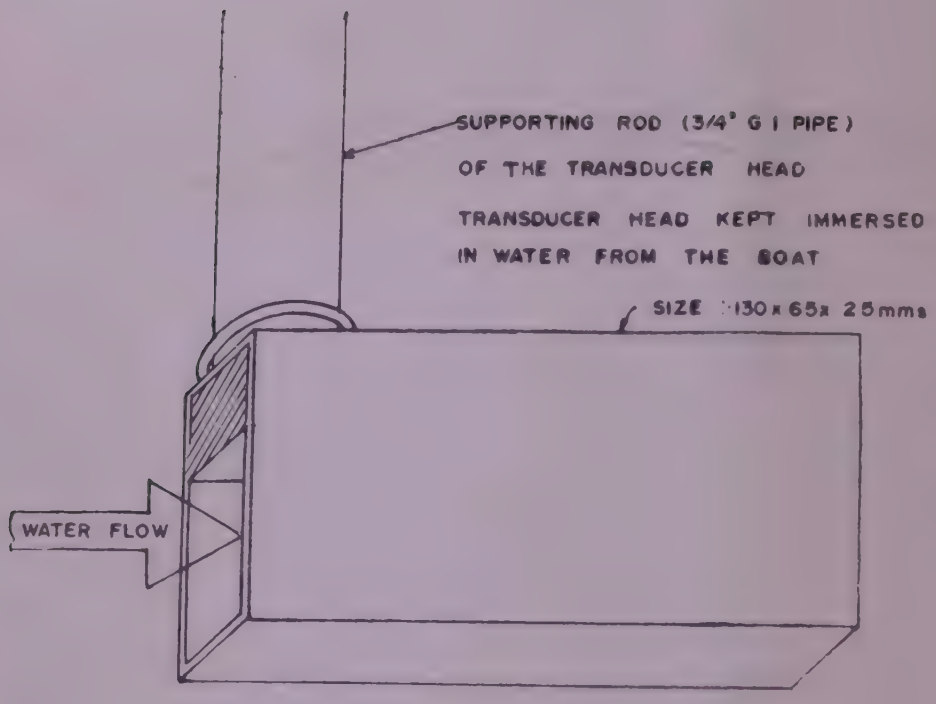
SUPPORTING ROD (3/4" G I PIPE)
OF THE TRANSDUCER HEAD
TRANSDUCER HEAD KEPT IMMERSED
IN WATER FROM THE BOAT
SIZE :130 x 65x 25mms
WATER FLOW

Fig. 1

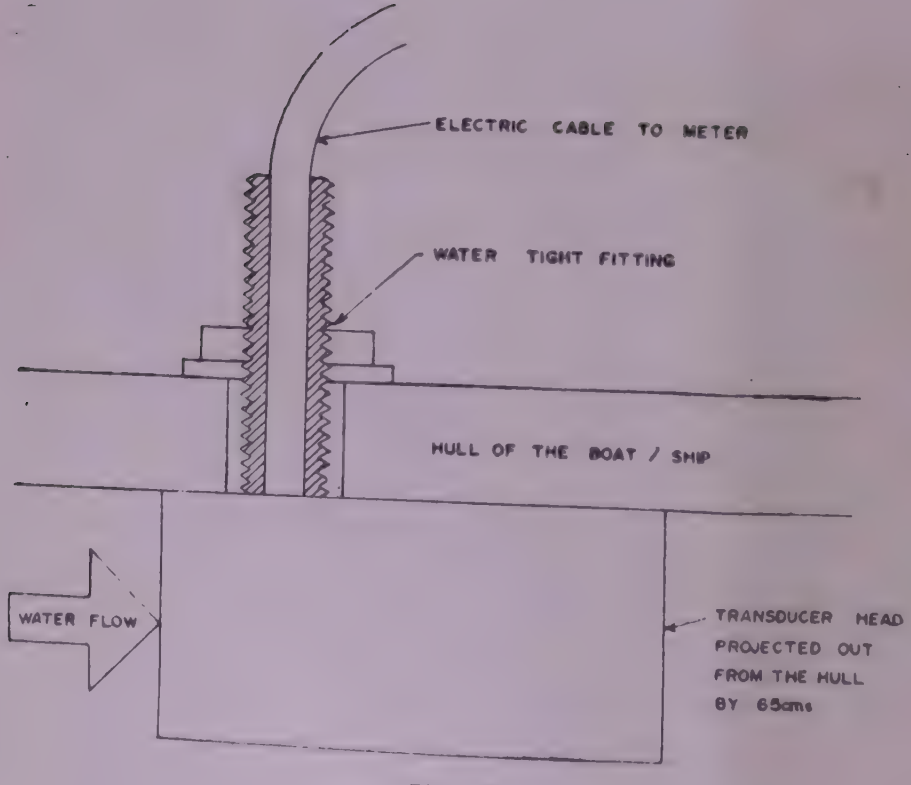

Fig. 2

unted transducer requires maintenance 2 or 3 times a year.

OTHER FEATURES

Range : 0 to 5 knot/hr, 10 knots/hr

Accuracy : $\pm$.1 and .2 knot respectively.

Display : Displayed in micrammetes.

Power : Self contained battery of 9 v dry cells with 30 ma power consumption.

Dimensions : Compact transducer of 130 X 65X25 mm with special arrangements for easy hull mounting and side mounting.

Fully indigenous development. Approximate cost is estimated to be Rs. 3000/-

C.P.T.R.I.

HIGH OPENING TRAWL FOR DEMERSAL AND COLUMN FISHES

A high opening trawl net of 32 m. head rope length has been developed at the CIFT, Cochin. This trawl is suitable for medium size trawlers of 15.2 m. O. A. L. and found efficient for the exploitation of both column and bottom fishes.

The net design was based on the design followed by Hary Buckingham of U. K. giving more emphasis for more vertical opening. The mesh size has been increased based on the theory that trapped schooling fish do not attempt to break through the large mesh in the fore part of the net, thereby the escapement is insignificant.

Having a mesh size ranging from 22 cm. in the fore part to 3 cm. in the cod end, the new net has only 194000 meshes, 40 to 50 per cent less than that of conventional trawl of same head rope length. By increasing mesh size the requirement of materials and cost of fabrication can be saved to an extent of 30 to 40 per cent. Further, the construction of the net is simple and easy. The large mesh enables more flow of water and thereby the resistance is reduced considerably.

Fishing experiments with this net have given encouraging results. In 19 days comprising 52 hours of fishing this net landed 4900 kg of fish It is also observed that the catch mainly comprised of quality fish, eliminating the small fish and other unwanted particles of the sea bed. Comparative fishing trial between the large mesh trawl and the conventional small mesh trawl, proved the better efficiency of the large mesh trawl.

OBITUARY

Mr. M. N. Junji (Meghji to his friends), Junior Laboratory Assistant of CIFT's Veraval Research Centre, passed away on August 7, 1978.

He was 40. He leaves his wife and four children - two boys and two girls.

He joined the Veraval Station as a Laboratory attendant since its inception in 1962.

Convention on changing food concepts

A three-day national convention of food scientists and technologists was held in June, 1978 at the Central Food Technological Research Institute, Mysore. Organised jointly by the Association of Food Scientists and Technologists and CFTRI, the first of its kind in India, over 200 scientists from India and abroad participated in the symposium. The theme of the symposium which spread over nine session was science and technology for changing food concepts.

Inaugurating the convention Karnataka Transport Minister, Mr. Aziz Sait, emphasised the need for developing a post-harvest technology for Indian Agriculture including fisheries on a malay — remedy basis.

The symposium that followed reflected the present trend of food research in both post-harvest technology and processing of food materials. Eminent scientists like Dr. B.L. Amba and Dr. K. T. Achaya were among those who led the panel discussion. Scientists, Messers V. N. Nambiar, P.K Surendran, Francis Thomas, Subrata Basu and M. K. Mukundan, represented the CIFT in the delebrations.

Independence Day

The 31st anniversary of Indian Independence was celebrated by the staff and family members of CIFT. Institute Director Mr G.K Kuriyan hoisted the National Flag at the Office and Staff quarters premises. Picture shows Mrs. Kuriyan distributing sweets to kinds at the Institute.

ARS SCIENTISTS JOIN

Thirteen out of 18 Agricultural Research Service Scientists including two woman have joined the CIFT. This is the third batch of ARS Scientists recruited through an All India competitive examination. They will be engaged in training for the first year including 3 months training at Hyderabad under various disciplines of Fishery technology like fish processing, processing plant practices, piolet plant practices, design and operational aspects of fishing gear and fish processing equipments, instrumentation, installation, repairs, and maintenance of marine engines, design and maintenance aspects of boat building, fishing methods, village level training etc.,

GLEANINGS FROM OTHER JOURNALS

Rs. 37 - crore Kerala Plan for Development of Fisheries

The Kerala Government has submitted to the Centre a Rs. 37 - crore scheme, to be implemented with the assistance of the World Bank, for the integrated development of the fishing industry in that State.

Disclosing this in the State Assembly, the Minister for Fisheries, Mr. Avukaderkutty Naha said the scheme, when sanctioned, would be taken up in right earnest with Vizhinjam, in Trivandrum district, as the centre of operation. The accent would be on the development of deep-sea fishing.

Mr Naha admitted that the fish catch was on the decline but he could not pinpoint the exact reason for that. Even the marine experts consulted by the Government could not give a scientific explanation for the phenomenon, the Minister stated.

The Minister said the Government's effort in the field of fisheries were part of a master plan prepared a decade ago. The plan envisaged an expenditure of nearly Rs. 306 crores over a 20 year period, and it was to be a joint effort by the State Govt., the Central Govt. and the private sector. The idea was to raise the fish catch from 3.5 lakh tonnes to 14 lakh tonnes. But so far the increase had been less than a lakh of tonnes.

The main thrust of the Govt. in this respect was the formation of fishermen's co-operatives and providing them with the necessary equipment such as mechanised boats and fishing nets and facilities for storage and marketing, etc. But the societies were a big disappointment. The target was to form 6,050 co-operative societies, but only 849 could be formed. The Govt. had so far spent Rs. 24 crores towards this scheme.

Mr Naha told the House that the master plan also envisaged the construction of houses for fishermen The target was 34.750 houses in 20 years. Of this, 3,000 houses had been constructed and another 3,691 were now under construction. In addition to these, 10,000 houses would be built this year. The Govt. gave Rs. 2,000 as subsidy and Rs. 2,000 as loan to the beneficiaries. As the salvation of the industry lay in developing deep-sea fishing, the Govt. would, purchase 8,100 mechanised boats, with the assistance of the ARDC. At present therewere 1,439 Government-supplied boats an d 1,202 privately-owned boats.

— Hindu

India to buy Ocean Research Vessel

India is to acquire an Oceanographic Research Vessel fitted with modern equipment for inter-disciplinary research on the now-living resources of the sea, the ocean floor, and ocean crust. The decision was taken at a meeting at the board of the Ocean Science and Technology Agency (OSTA).

— (Indian Engineering News Record)

Cold Storage Unit Using Solar Energy

Scientists of two Indian Institutes of Technology are working on exploring two natural energy sources - sun and hot springs - for refrigeration of cold storages.

A cold storage unit based on solar energy is being developed by the mechanical engineering department of the IIT, Powai, near Bombay.

Meanwhile, the IIT, New Delhi, has also developed a cold storage unit, based on hot water springs, instead of solar energy, for possible use in areas where there are mineral springs.

According to experts the solar energy-based unit being developed by the IIT, Powai, can have immence potentialities for widespread use in the rural areas for preserving farm and orchard produce.

Cold storage facilities can be a boon to farmers, particularly small farmers, as they wont have to market away their produce at low prices at harvest time.

The work at the IIT, Powai, is a research and development project sponsored by the department of Science and Technology of the Union Government. It is expected to be completed by the end of this year or early next year. Trial runs will follow.

If the solar powered cold storage unit proves commercially viable, it will essentially be of a community type for use by a group of co-operative of farmers. It will be a self-contained unit' unlike other units, which require power from conventional sources, like thermal and hydro stations.

The unit being developed at the ITI, Powai, on an experimental basis, is a small half-tonne refrigerator that can preserve comodities stored in a room 30 feet by 15 feet by 12 feet.

—Indian Express

Mr. S. S. Dhanoa (second from left) Secretary, ICAR and Joint Secretary to Government of India, Ministry of Agriculture and Irrigation visited the CIFT on August 31, 1978.

Questions & Answers

M/s Swapna Sea foods, Cochin.

Q What is the normal life of frozen shrimp preserved in cold store under proper temperature ?

A The frozen storage life of shrimp depends on several factors like quality of raw prawn used for freezing, pre-process ice storage, time taken for freezing, fluctuation on frozen storage temperature etc. Our observation on frozen storage period (under proper temperature) in relation to ice storage period is shown below :

Days of ice storage	Maximum frozen storage life retaining quality		
	HL frozen	P & D frozen.	P & D cooked frozen
0 to 2 days	25 weeks	25 weeks	25 weeks
3 days	18 „	15 „	18 weeks
5 days	10 „	—	—

M/s. Konkon Fisheries Private Ltd, Bombay.

Q Please advise us which of the following method is better as far as quality control and recovery of crab meat is concerned :-

1) Boil the live crabs and then ice them at the procurement centre. Transfer to the factory site with ice and remove the meat for further processing.

2) Ice the live crabs at the procurement centre without boiling. Transfer to the factory site with ice and remove the neat for further processing.

A Cooked frozen crab meat has been seen to have lesser shelf-life than raw frozen meat. Icing for about 12 hrs is better for easy picking up of the meat and for better yield. For freezing whole crabs, at the procurement centre, transfer to the factory with ice, boil and clean and freeze in the usual way.

Director of Fisheries, Kerala.

Q Please let me know the engines having the propellers of the following size can be installed in the boats proposed to be constructed as per your fishing design I (25' open power fishing boat). The boats are meant for gill netting.

1) Kirloskar RBV - 2M (Propellor fan) 21" x 15"

2) Ruston 2 YDAM 23" x 15" (Dia x Pitch)

A The 25 ft fishing boat of this Institute's design can accomodate only a propeller of diameter 21" or below. Hence the Kirloskar RBV-2M engine with 20"x15" propeller may be installed in the boat Alternatively the Rustom 2 YDAM engine with 25" x 15" propeller can also be installed Changing the propeller size (to 21" x 15") of the Ruston engine will not adversely affect the performance of the vessel.

Mr. Dilip Biwalkar, Bombay.

Q I wish to manufacture fish protein concentrate on commercial scale. Would you kindly help me with technical details ?

A Commercial feasibility of manufacturing fish protein concentrate and its marketability have not been established so far. Hence it is not advisable to establish a production unit for the product.

M/s. Jalseva, Engineers and Contractors, Poona.

Q We are interested in the construction of ferro-cement fishing trawlers and developing and Manufacturing of ultro-sonic echo-sounders and fish finders near Ratnagiri. Pleasee convey us your comments on the following points:

1) Economic viability and fishermen's faith in ferro cement fishing boat.

2) Use of ferro-cement floating jetties for the fisheries ports.

3) Names and Addresses of the indegenous manufacturers of echo-sounders and fish finders: if so.

4) The market potential and the faith of fishermen in using echo - sounders surveyed by you.

5) Have you prepared any project report for the same and its availability.

6) Economics of using fish finder, echo souder and underwater temperature recorders evaluated by you.

A Ferroce-ment is an accepted construction material for fishing boats jn some of the countries. In India few ferrocement boats have been built by the Department of Fisheries, Tamil Nadu, and the Andhra Pradesh Fisheries Development Corporation Ltd., Details on performance of these vessels can be had from the Director of fisheries, Tamil Nadu and the Superintendent of the boat building yard, Kakinada respectively. Though this Institute has undertaken portotype studies on ferro-cement boats and has seen the material to be satisfactory, we have not tried ferro-cement fishing boats under field conditions and as such, cannot give any comments on its performance and economic feasibility.

2) Worth trying. We have no experience.

3) M/s. British Physical Laboratories, Palghat, Kerala.

4) We have undertaken no survey in this regard. But it is presumed that there is potential for indigenous manufacture of this item, if it is of standard quality.

5) No

6) Fish finder is almost an essential equipment for deep sea fishing. Underwater temperature recorders will be useful in oceanographic studies.

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ADDITIONS TO CIFT LIBRARY

Indian Standards Institution.
Specification for Dry-Salted Mackerel.
IS: 4302—1967

Indlan Standards Institution.
Code of practice for tests and trials of Dredgers.
Part I Self—propelled Trailing Hopper suction Dredgers.
IS: 8509 (Pt. I) 1977.

Indian Standards Institution.
Air Conditioning requirements on Board ships.
IS: 8434—1977

Indian Standards Institution.
Specification for copper rods for boiler stay bolts and rivets.
IS: 288—1960.

Indian Standards Instituion.
Specification for Naval Brass Rods and sections (Suitable for machining and forging)
IS: 291—1977.

Indian Standards Institution.
Specification for Leaded Tin Broxe ingots and castings.
IS: 318—1962

Indian Standards Institution.
Specification for High Tensile Brass Rods and sections.
IS: 320—1962

Indian Standards Institution.
Specification for Brass Tubes for General purposes.
IS: 407—1966

Indian Standards Institution.
Specification for Rolled Brass Plate, Sheet Strip and Foil.
IS: 410—1967

Indian Standards Institution.
Specification for Aluminium and Aluminium Alloy Ingots and castings for general Engineering purposes.
IS: 617—1975

Indian Standards Institution.
Specification for Wrought Aluminium and Aluminium Alloy Bars Roads and sections (for General Engineering Purposes.)
IS: 733—1975

Indian Standards Institution.
Specification for Wrought Aluminium and Aluminium Alloy forging stocks and Forgings (General Engineering Purposes.)
IS: 734—1975

Indian Standards Institution.
Specification for Wrought Aluminium and Aluminium Alloys Plate (for General Engineering Purposes)
IS: 736—1974

Indian Standards Institution.
Specification for Wrought Aluminium and Aluminium Alloy drawn Tube for General Engineering Purposes.
IS: 738—1977

Indian Standards Institution.
Specification for Wrought Aluminium Alloy Bolt and Screw Stock (for General Engineerinig Purposes)
IS: 1284—1975

Indian Standards Institution.
Specification for Wrought Aluminium and Aluminium Alloy Extruded round tube and hollow sections (for General Engineering Purposes.)
IS: 1285—1975

Indian Standards Institution.
Specification for solid drawn Copper Alloy tubes.
IS: 1545—1969

Indian Standards Institution.
Specification for copper plate, sheet and strip for Industrial purposes.
IS: 1972—1977

Indian Standards Institution.
Specification for Line Pipe.
IS: 1978—1971

Indian Standards Institution.
Specification for High-Test Line Pipe.
IS: 1979—1971

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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

Please contact:

Director,
C. I. F. T.,
Matsyapuri P. O.
Cochin - 682 029.

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Fish Technology news letter

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MATSYAPURI P. O. COCHIN – 682 029

Vol. 1 No. 3 September, 1978

C.I.F.T.R.I.
23.6.80

Members of Parliamentary Consultative Committee on Agriculture & Irrigation with Staff of CIFT — Report on page-3

Members of Parliament visit C I F T

Members of the Parliamentary Consultative Committee on Agriculture and Irrigation visited the C I F T in Sept. 1978. This was as a part of their visit to various I C A. R. Institutes / Projects in southern parts of the Country viz. Cochin, Trivandrum, Kasaragod, Coimbatore, Bangalore and Hyderabad.

The Committee members took keen interest to evaluate the activities of the Institute and had discussions with Institute Director, scientists and other officers.

In a brief report of the activities and achievements of the Institute the Director informed the members that the C I F T was the only National Centre in the country where research investigations in all disciplines of fishing and fish processing technology were undertaken. "In fact, C I F T is one among the leading world laboratories in the field", he pointed out.

The Director mentioned that the research conducted at the Institute had yielded many useful results, which had contributed substantially to the modernisation and expansion of the Fishery Industry in the country.

Outlining the major programmes proposed to be undertaken during the VI Plan, Director added the following.

1) Development of cheaper and efficient fishing crafts made out of treated secondary species of timber and materials like aluminium, ferrocement, fibre glass reinforced plastic, steel, with newer techniques on their operation and maintenance.

2) Design and development of suitable fishing gear for commercial exploitation of the different varieties of marine fish other than

The MPs examining by tasting some of the delicious fish products prepared by the CIFT scientists.

shrimps as well as fish of inland waters like rivers, lakes and reservoirs.

3) Further development of indigenous fishing crafts and gear with improvements to the traditional fish preservation process.

4) Research and development in the better utilization of marine products, their preservation and wider distribution within India and abroad.

5) Development and operation of pilot plants, prototypes and other machineries required in the harvest and post-harvest stages in the exploitation of the fishery resources.

Members of Parliament in the CIFT Laboratory

MPs watching filletting of fish by ARS trainees

6) Transfer of proven technology and newer innovations to the industry through proper media.

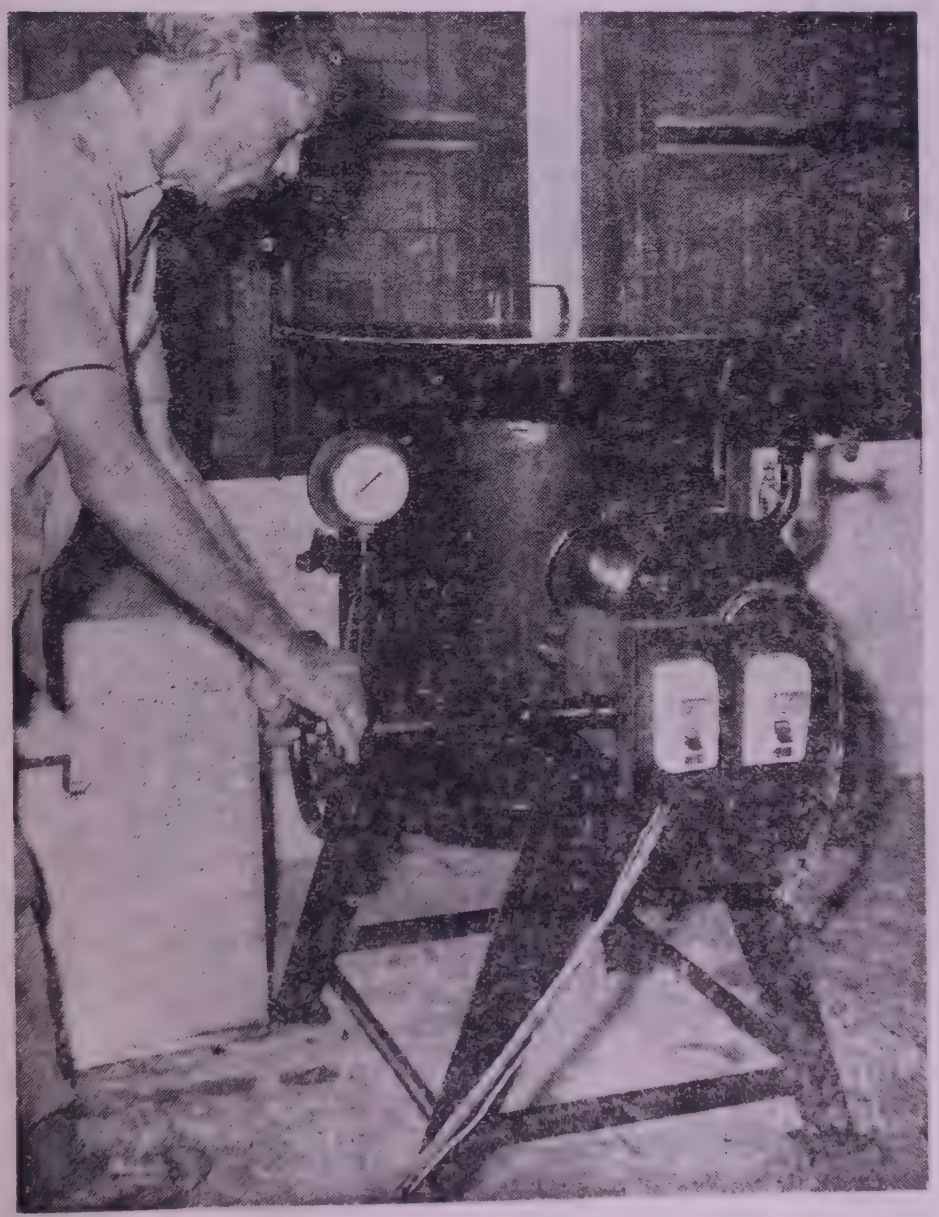
While addressing the scientists and staff of the institute, members of the consultative committee commended on the tremendous achievements made by the Institute during the last two decades in the field of Fisheries Tech-

C.F.T.R.I.

Electrically Heated Stainless Steel Kettle

The Central Institute of Fisheries Technology, Cochin, has designed and fabricated an Electrically Heated Stainless Steel Kettle for cooking fish and fishery products. This fully indigenous equipment is designed mainly for use in laboratories and small fish processing plants

Having a maximum steam pressure of 1 06 kg. per sq. c m. (15pounds per inch square) the vessel has a capacity of cooking 40 kgs. of



Electrically heated stainless steel kettle designed and fabricated by the CIFT

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nology, and expressed the hope that it will play a vital role in the economic development of the country.

Mr. P. A. Prabhakara Rao, M P stressed the need of transferring the indigenous technology developed by the Institute to the benefit of common fishermen who were responsible for the country's largest share of fish catch.

"Looking at the coastal belt in the country, the CIFT requires more help and boosting-up from the Govt. side" suggested Mr. Sivanandan Singh, M. P.

According to Mr Hukkum Deo Narain, M. P., information on the proven technology should be disseminated among the fisher folk in their own mother tongue

fish. The Kettle costs Rs. 8000 approximately.

The equipment consists of a stainless steel vessel with M S. outer jacket having two industrial purpose immersion heaters fitted inside the jacket. The vessel is welded to a M. S. shaft which is supported on bearing on a tubular frame structure. The shaft is fixed with a worm gear arrangement so that the vessel can be tilted easily using the hand wheel for unloading the materials. The worm gear and the heater coil terminals are enclosed in metallic box coverings so that water will not fall inside. The kettle is provided with safety valve, pressure gauge, water inlet pipe, drain pipe, steam cock etc. Since the contact parts and top lid of the vessel are made of stainless steel, the food materials can be cooked hygienically. The outside of the vessel is coated with heat resistant paint.

The kettle can be worked on a 230 volts, single phase supply mains. The temperature inside the jacketted kettle can be controlled by using the control switches with indicator lamp provided with the heaters.

OPERATION

First of all the vessel is held in the vertical position and water is filled inside the jacketted kettle through the inlet pipe after opening the inlet valve up to the required level so that the heaters will get immersed in water. The water level can be known by opening the steam cock fitted by the side of the M. S. outer jacket. Water has to be filled inside till it starts escaping through the cock. Now the vessel is ready for operation.

The materials to be cooked are fed into the vessel and covered with the lid. Then the heaters are switched on. Steam will be developed inside the jacketted kettle and when it starts escaping through the valve by ejecting the air inside, all the valves have to be closed. Then pressure will start developing inside the jacket and when it reaches the required pressure which can be noted in the pressure gauge, either of the heaters can be switched off so as to maintain a constant pressure. If the steam pressure exceeds, it will escape through the safety valve which is kept adjusted to the required pressure. After cooking for the required time the materials can be taken out completely by tilting the vessel with the help of hand wheel. **

Venkataraman Retires

Mr. R. Venkataraman, Scientist-in-Charge of Veraval Research Centre of C I F T, retired in September, 1978 after 34 years of service. As a Scientist he has played a vital role in the development of Fishery Technology in the country, especially in the field of salting, drying, chilling, packing and transporting of fish and fishery - products.

Credit goes to Mr. Venkataraman for successfully running the mechanical Pilot Fish Meal plant at Calicut, the first of its kind in the country, by the Fisheries Technological Laboratory at Calicut.

During his tenure at Veraval for sixteen years he has made significant contribution to the momentous and phenomenal all round development of the fish processing industry and fishing activities of Gujarat.

COURSE ON FRP TECHNOLOGY

A six-day intensive course on Fibre Reinforced Plastic (FRP) Technology was held in August - September, 1978, at the FRP Research Centre, IIT, Madras. The object of the course was to provide the right know-how and up-dating the skill of the engineers and fabricators in this field.

Organised by the F R P Research Centre of Madras IIT, the third in this series, sixty five Scientists and Technocrats from various Industries and Scientific Institutions all over India participated in the course.

The course consisted of lectures, workshop demonstrations, laboratory works, visits to Laboratories and other Institutions in Madras, film shows etc. The course also provided an opportunity for the participants to discuss some of their technical problems with the faculty who are themselves experts with several years of experience on FRP Technology.

Mr. R. Balasubramanyan, Scientist, (Crafts & Gear) represented the C I F T.

COCHIN FISHERIES HARBOUR INAUGURATED

The first stage of the Cochin Fisheries Harbour was inaugurated on Sept, 1978, by Mr. Chand Ram, Union Minister for Shipping and Transport.

Cochin Fisheries Harbour is the third fishing harbour commissioned, the other two being at Tuticorin and Visakhapatnam. The Rs. 35 million harbour with 20 ft. draft provides a 1200 ft. wharf, a 250 ft. projecting Jetty, an auction - cum - packing hall, net repair sheds, fish gear shed, parking facilities, overhead water tank, retail fuel outlets, etc.

GLEANINGS FROM OTHER JOURNALS

MODERN EQUIPMENT FOR FISHERIES COPORATION LAB

The Kerala Fisheries Corporation Ltd., a Kerala Government undertaking, has expanded the activities of its Central Quality Control and Product Development Laboratory in Cochin by adding more facilities suited to the requirements of exporters, buyers and other entrepreneurs dealing with processed food products.

The new facilities include all the sophisticated equipment required for the identification, isolation and enumeration of micro-organisms, high precision instruments and top quality re-agents required for the qualitative and quantitative food analysis with high technical skill.

The analytical works that could be undertaken by the Corporation for the benefit of sea food processors and exporters include the evaluation of physical organoleptic and microbiological quality of marine products processed as per international standards, chemical/microbiological quality of water for food processing industries suitable of packaging materials like polyethylane films, duplex cartons for export packs and quality parameters of canned bottled dried food products.

—HINDU.

More Fishing Trawlers

India will acquire additional 20 fishing trawlers by March next year to develop its fishing industry on an international level, Union Agriculture Secretary, G. V. K. Rao said in Singapore.

Mr. Rao said the trawlers, some manufactured in India and others imported, could be utilised to fish along the coastline as also in international waters, since India had a 320 km economic zone.

Steps were also being taken to establish more processing units, instruction centres and other facilities in various parts of the country to increase production which was expected to reach the Rs. 200 - crore mark, he said.

After discussing with senior officials and visiting some food manufacturing factories, Mr. Rao told fine potential existed in Singapore for joint projects in food processing. While India had abundant raw materials, Singapore developed technical expertise and marketing skill and both could be used to mutual advantage.

— INDIAN EXPRESS

Manganese Noudles in Indian Ocean

Several ocean beds, spread around the world, contain immense quantities of manganese nodules. These nodules contain significant quantities of manganese nodules. (0 5-37.0 per cent). The Central Indian basin of the Indian Ocean, which starts at around 400 km south at Kanyakumari is a major source of these nodules. The National Institute of Oceanography's ship r. v. Gaeshani proposes to undertake a survey of manganese nodules in the Central Indian basin (between 8 and 33 degrees South and 72 and 90 degrees East) during the Sixth Plan period. The project cost is estimated at Rs. 15 crores.

It is anticipated that once these nodules are exploited commercially the world prices of copper and nickel, apart from that of manganese, will crash. This is thought against the interests of multinationals which are actively trying to gain control of seabed mining and exploration.

— HINDU

SIMPLE TECHNIQUES FOR POWER FROM SUNLIGHT

Professor Laurence E. Lyons of the University of Queensland has developed a simple technique for converting sunlight into electricity.

The basis of his system is a metal electrode coated with chemicals which when immersed in a special solution and placed in the sun, generates an electric current, a process similar to that used in elctroplating.

Electrical effciency of two to four per cent has been achieved in experiments. Eight to 10 per cent efficiency is widely accepted as a commercially viable standard. The process also generates heat and if this is taken into account the efficiency level is higher.

HINDU.

Fishing Simplfied

A new jig which will help the fisherman reduce the size of of his tackle box has been introduced by Sandgaard Design, and it has been given a very favourable reception from Scandinavian fishing magazines, whose experts found it a very effictive lure for most species.

Sandgaard's " Universal Killer " is made in two models, one small (10.40gm) and one large (60 330 gm). The weight is varied by inserting or removing specially - shaped lead pellets, which are kept in place by a sliding tubular cover that can be changed (there are several patterns) without removing the hook from the line.

INDIAN ENGINEERING
NEWS RECORD.

Questions & Answers

Mr. Vishnu Madhav Mahale, Goa.

Q I am presently supplying fish and shrimps to most of the leading hotels and factories in Goa. Now I am thinking of expanding the area of supply which will involve two days transportation. I would, therefore, be most grateful if you will kindly inform me details of preservation of shell fish, lobsters, mytillus and oysters with shells and dressed.

A For long distance transport of fish (iced or frozen) insulated boxes can be used. Cheap insulated boxes can be made using second hand tea-chests and thermocole. The details of fabrication of the insulated box and transportation of fish using.the insulated box are given below:

Tea-chests of size approximately 50 cm x 50 cm x 60 cm may be used. This will hold about 100 kg fish and ice (1:1). 25mm thermocole slabs are cut to the inside size of the box and sealed in polythene bags (200 gauge) to prevent the thermocole slabs from coming in contact with the icemelt water. Six thermocole slabs are required to insulate the box, four in all the four sides, one bottom side and one iniside the lid.

Transport of iced fish

1. Fish and ice should be in the ratio 1:1
2. Put a layer of crushed ice at the bottom of the box.
3. Place one layer of fish and then another layer of ice and so on, with a layer of ice at the top finally.
4. Fix up the lid to the box, wrap the entire box with gunny and seal.

By this method fish can be transportated to distant places where the journey lasts for 50-55 hours.

Transport of frozen fish

1. Freeze the fish either individually or as blocks to a temperature of 23°C.
2. Pack the frozen fish in thermocole insulated boxes of convenient size.
3. If individually frozen fish is packed, fill up the gaps between fish with crushed ice.
4. Fix up the lid and transport in ordinary rail wagons or trucks

By this method fish can be transported to distant places as may require 3-4 days journey. The fish reaching the distination will be in a thawed state and can be marketed as fresh fish.

Dr. D. N. Borthakur,
ICAR Research Complex,
Shillong.

Q We have taken up some research projects in fishery in the Umiam Reservoir, near shillong and we want to procure a boat for operation in the reservoir in connection with the said project.

The following information is requirhd with respect to the boat to be procured.

1. Whether out-board engine or in-board engine needed.
2. Kind of boat dimension and materials of the boat.
3. Horse-power and type of engine.
4. Source of procurement

A Presuming that both experimental fishing and general survey have to be carried out in the reservoir a 30 ft boat of this Institute's design is recommended. Recommended Horse Power of the engine is 20-30 BHP, either fresh water cooled or air cooled.

Construction Material:

Well seasoned good quality Teak Wood (Tectona grandis) or Chapalasha (Artocarpus Chaplash) with either copper/brass or galvanized iron fastenings.

Hull sheathing

With Aluminum/magnesium alloy of 24 SWG/Soft or $\frac{1}{4}$ hard as optional with no painting.

Special Deck equipment:

A simple gill net and line hauler or wooden rollers, mooring bit, cleats etc.

Other standard items

Like navigationals light, life - buoys. life - jackets, anchor and chains.

Anticipated speed under light load condition about 7 knotes. Can be constructed in the local yards in Shillong if any or at Calcutta.

Approximate maximum price for hull without engine for Teakwood and Copper fastenings.	Rs. 60,000.
Cost of engine.	Rs. 40,000.

ADDITIONS TO CIFT LIBRARY

Indian Standards Institution
Specification for Steel
Rivet and Stay Bars for
Bilers IS: 1990—1973

Indian Standards Institution
Specification for Copper
Tubes for General
Engineering purposes
IS: 2501—1972

Indian Standards Institution
Specification for Corrosion
Resistant Steel Castings
IS 3444—1966

Indian Standards Institution
Specification for copper
rods for General
Engineering Purposes.
IS: 4171—1967

Indian Standards Institution
Safety code for industrial
Radiographic practice.

Indian Standards Institution
Code of practice for
Ultrasonic testing by pulse
Echo method (Direct contact)
IS: 3664—1966

Indian Standards Institution
Specification for structural steel
(Standards quality)
IS: 226—1975

Indian Standards Institution
Specification for structural Steel
(High Tensile)
IS: 961—1975

Indian Standards Institution
Specification for structural steel
(Fusion Welding quality)
IS: 2062—1969

Indian Standards Institution
Specification for steel plate
for pressure vessels
IS: 2041—1962

Indian Standards Institution
Specification for structural steel
(Ship building quality)
IS: 3039—1965

Indian Standards Institution
Specification for Steel plates
for boilers
IS: 2002—1962

Indian Standards Institution
Code of practice for Liquid
penetrant flaw detection.
IS: 3658—1966

Indian Standards Institution
Code of practice for magnetic
particle flaw detection
IS: 3703—1966

Indian Standards Institution
General Requirements for the
supply of Mateallurgical
Materials. IS: 1387—1967

Indian Standards Institution
Technical supply conditions
for Threaded Fasteners
IS: 1367—1967

Indian Standards Institution
Specification for Filler Rods
for Gas Welding
IS: 1278—1972

Indian Standards Institution
Specification for Molybdenum
and Chromium Molybdenum
Vanadium low alloy steel
Electrodes for Metal ARC
Welding IS: 1395—1971

Indian Standards Institution
Acceptance Tests for Wire-Flux
combinations for Submerged
ARC Welding of structural steel
IS: 3613—1974

Indian Standards Institution
Specification for Resistance
Spot-Welding Electrodes
IS: 4972—1968

Indian Standards Institution
Specification for Corrosion
Resisting Chromium and
Chromium Nickel steel covered
Electrodes for manual metal
ARC Welding
IS: 5206—1969

Indian Standards Institution
Specification for Formed
Ends for tanks and pressure
Vessels IS: 4049—1971

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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

Please contact:

Director,
C. I. F. T.,
Matsyapuri P. O.
Cochin - 682 029.

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Fish Technology news letter

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN – 682 029

Vol. 1 No. 4 October, 1978

CENTRAL
23.6.80

Disjoinable Insulated Box for Fish Transportation

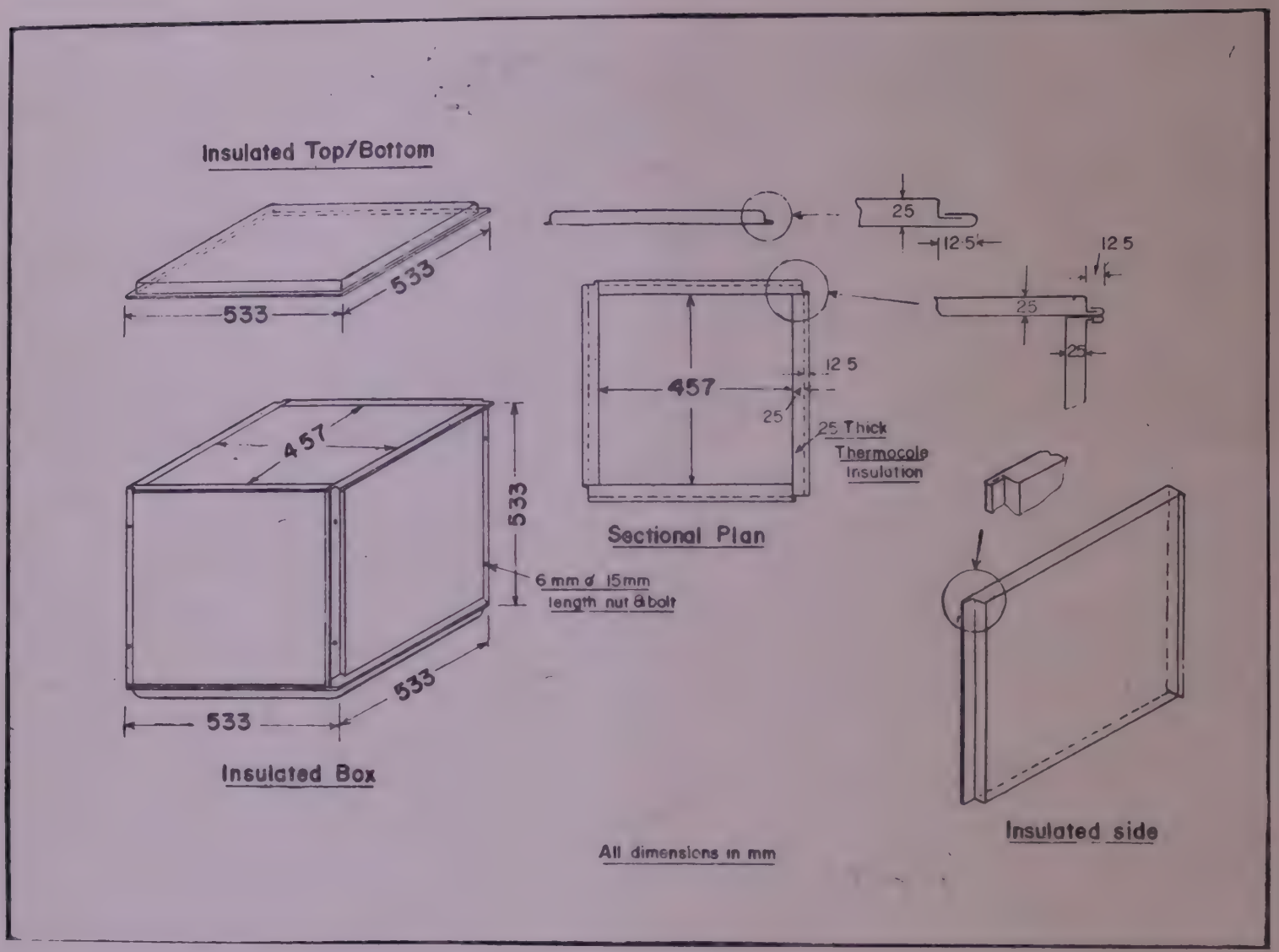
With the annual fish landings in India having touched the figure of 2·3 million tonnes, an estimated 67% of which is consumed in the fresh condition ie; without any preservative treatment other than chilling with crushed ice, efficient transportation of fresh iced fish over long distances assumes utmost importance in our country, especially because the potential consuming centres are many a time situated anywhere between a couple of hundreds to more than one thousand kilometres away from the production sites.

Bulk transportation as it is at present resorted to in carrier launches from Saurashtra and Konkan coasts to Bombay and in trucks from Kerala coast to the high ranges and the like while being economic, has got its own limitations, as heaping of iced fish to heights in excess of one metre squeezes out the juice and sometimes even the entrails from the fish at the lower layers. In order to dispense with this contingency, packing of the iced fish in containers as practised in rail transportation all over the country as well as road transportation in Maharashtra-Saurashtra region is more advisable. Containers at present employed for this purpose are disposable split bamboo baskets in the south, and 'harhar' baskets and dealwood/plywood boxes in the north. Shelf life of iced fish in such containers is extremely limited due to their poor insulation properties. A distinct step forward in this regard has been the application of expanded polystyrene slab sealed in polythene sheet as insulant in plywood boxes/second hand teachests. Though much more efficient than conventional containers, this also has got some limitations in so far as the insulant being highly brittle and container readily absorbing moisture from ice melt water with consequent dissociation into its component plies, its utility has not been commensurate with the expenditure involved.

NEW DEVICE

Another alternative is to use conventional two-piece insulated boxes with a main body comprising the bottom and four sides and a lid hinged on to it. However, the rough handling methods obtaining in our public transportation systems like the railway easily spoil such containers, having got to be completely discarded when once they get distorted out of shape. Hence, an entirely novel idea was conceived and given shape to in the present innovation of a disjoinable / disbandable / dismantlable insulated box in six pieces assembled together with bolts and nuts.

Design details of the box are shown in the diagram. The box was fabricated with 22 gauge G. I. sheet and 25mm thick expanded polystyrene



slabs. G. I. bolts of 6mm dia, and 15mm length were used for assembling the box which has internal and external dimensions of 457mm and 508mm cubes respectively with 12.5mm wide flaps projecting at the joints Top and bottom are identical pieces 508mm square with 12 5mm flaps on all the four sides, as also all the four side pieces which measure 483×457mm in size with similar flaps at the edges bent in appropriate directions. The insulant is sandwiched between the double layer of metal sheet whose folded ends are properly soldered in order to render them water-tight. Holes are made on the flaps for the bolts. The assembled box has a tare weight of 19kg and capacity of 70kg (35kg fish + 35kg ice) The design can suitably be modified for different sizes of the container and different thicknesses of insulant.

ADVANTAGES

The new container has several advantages like reduced cost of manufacture in the sense that it can be mass produced mechanically, two types of pieces alone having to be fabricated, reducing fabrication charges involved Unlike in the conventional insulated box, in the event of any damage beyond repair, only such pieces need replacement

It also facilitates returning of the empty boxes to the despatching centre by dismantling and packing compactly, reducing the volume to 42% of the assembled box and ensuring better safety during transit Cleaning and disinfection of the box also become easier when once it is disjoined.

A box of the size described requires 2 nos of 22 gauge G. I. sheets (244cm × 91cm), 3nos of 25mm thick expanded polystyrene slabs (100cm × 50cm) and 36 nos of bolts and nuts, which along with the labour charges involved worked out to Rs 180/- at the time of its original fabrication in 1973. Of course, the escalation in the material costs and labour charges will be reflected under conditions currently prevalent. Though no comparative study as such has been carried out on the cost of fabrication with that of the conventional box, the simplicity in the production process of the present container and its vulnerability to repairs in parts definitely vouchsafe for its comparative economy, size to size. Rate of melting of ice is comparable to that in conventional container for same thicknesses of insulant and G. I. sheets.

Extensive field trials were carried out with four containers of the type described for transportation of iced fish from Kakinada to Calcutta and Delhi by ordinary (un-insulated) rail parcel vans involving journeys of 40 and 50 hours respectively at ambient temperatures Trials were also conducted from Paradip to Culcutta via Cuttack, 100 KM by road and 500 KM by rail in the first and second legs of transportation, taking a total of 24 hours. The four containers made a total of 30 trips to and fro in these experiments, each of them getting more or less equal chances of usage and were still in trim condition, but for slight denting here and there at the corners. The fish in all consignments reached the destination in excellent state of preservation.

TRANSFER OF TECHNOLOGY TO 50 THOUSAND FAMILIES

Dr M. S. Swaminathan, Director General of I. C A. R. has asked the Heads of Institutes / Projects under him to organise programmes for the transfer of Technology to 50,000 families as part of its Golden Jubilee programme of I. C. A. R. next year. In a letter addressed to them the Director General has explained the steps to be taken which include: (1) constituting an inter - disciplinary Task Force which would identify the companents of technology to be transferred.

(2) Identifying the blocks from where the farming families are to be chosen. In the selection of blocks, the State Govt. may be consulted so that the blocks chosen are among those included in the Integrated Rural Development Programme. From among the blocks chosen for the Integreted Rural Development Programme about thousand blocks are to be further selected for intensive attention so as to achieve full employment by 1981.

MEMBERS OF PARLIAMENT VISIT GOA RESEARCH CENTRE

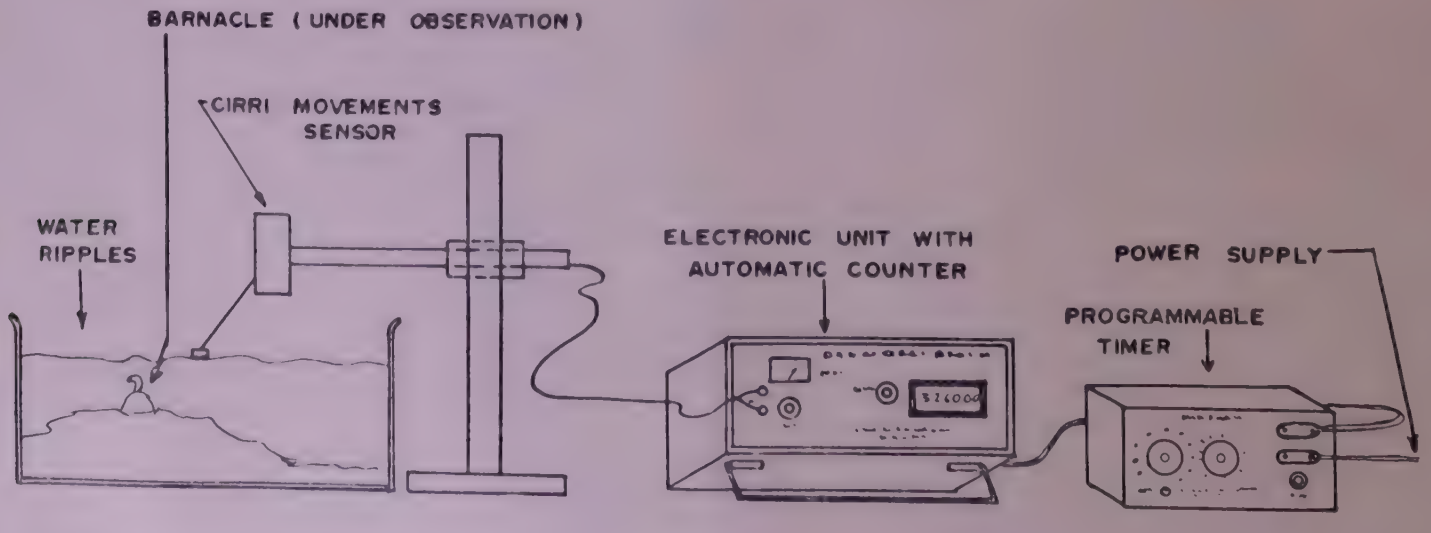
The second 5 member parliamentary sub-committee on implementation of Official Language headed by Mr. Yogendra Sharma visited the Goa Research Centre of CIFT in October 1978. The members had discussions with the officers of the Institute about progress of the implementation of Official Language

BARNANCLE CIRRI BEATINGS AUTOMATIC COUNTER

The Central Institute of Fisheries Technology, Cochin, has developed an electronic automatic counter to record the cirri beatings of barnacles kept in an experimental observation tank. It is the novelty and advantage of the instrument that the cirri beatings are sensed by the instrument without causing any disturbance to the normal behaviour of the barnacles The instrument counts the beatings fully automatically without any mannual attention up to 10 lakhs times once the experiment is set. The instrument can be set to operate either continuously or at selected times using a programmable electronic timer developed for the purpose.

The instrument can be used in screening of antifouling preparations under laboratory conditions as it helps to record the activity of foulers particularly barnacles. Determination of toxic loading in antifouling preparation is essential to avoid unnecessary fortification of antifouling preparations. This is important from the practical and economic points of view.

The instrument consists of a transducer, an electronic unit and a programmable timer. The transducer senses the movements of the cirri of the barnacles and converts them into electrical singals. The electronic unit processes the magnetic counter up to 10 lakhs times. The programmable timer is used to programme the observation in case it is not required continuously. The timer can be set to operate the counter at regular selected intervals or with a fixed duration or pause. Provision has been given for feeding the signals to paper recorder for further detailed and permanent records The instrument works on 220 V. A. C. or at



GLEANINGS FROM OTHER JOURNALS

C.P.T.R.I.

SEAFOOD EARNINGS UP

Export earnings from marine products during the first four months (April—July) of current financial year was 32 per cent higher in terms of quantity and about 18 per cent in value, over the exports in the corresponding period last year The exports were 25.361 tonnes valued at Rs. 69·27 crores against 19,234 tonnes valued at Rs. 58.84 crores during the same period last year. The increase was of 6,127 tonnes valued at Rs. 10.43 crores.

The proposed export target for 1978-79 is 73,780 tonnes valued at Rs. 226.57 crores. During 1977-78 export earnings amounted to Rs. 180 95 crores compa ed with Rs. 189·12 crores during 1976-77. The decline in terms of value was due to appreciation of the value of Indian currency *vis-a-vis* US dollar.

— ECONOMIC TIMES

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9 V. D. C. (with 40 M. A. current) . Approximate price of this ful y indigenous instrument is Rs. 3500/— . The price of programmable timer is Rs. 800/— .

GOVT. APPROVES MPEDA OFFICE IN TOKYO

The Marine Products Export Development Authority's proposal to open a Trade Promotion Office at Tokyo (Japan) has been approved by the Govt. of India. The Authority has appointed Mr R. R. Singh, under Secretary in the Ministry of Commerce, New Delhi, as the Deputy Director to be in charge of this Trade Promotion Office at Tokyo. Mr. Singh has assumed Office at Tokyo. Mr. Singh met the seafood exporters in the Cochin region on the 29th of September at a n eeting held in the Office of the Authority.

Japan is the largest market for Indian frozen shrimp. During 1977-'78 India's Exports of shrimp to Japan were of the order of Rs. 109 crores. Next to iron ore, frozen shrimp is the single largest commodity from India to Japan.

With a view to further improve the exports of shrimp and also explore the possibilities for diversification of exports of Indian marine products, the Authority is separately undertaking a market survey in Japan with assistance from the international trade centre of UNCTAD/GATT, Geneva, during October-November, 1978 as part of its Integrated Programme of Technical Co-operation in trade promotion. Shri M. P. Haran, Deputy Director of the Authority, in association with an expert from the International Trade Centre, Geneva, will undertake the survey for Indian marine products in Japan.

—ECONOMIC TIMES

Massive use of Solar Power Predicted

Prof. M. G. K. Menon, Secretary, Dept. of Science and Technology, has predicted tremendous progress in the next decade in the use of solar energy through photo-chemical means

Inaugurating a four-day seminar on solar energy organised by the Commission of the European communities, he said in New Delhi that one of the most promising areas for use of solar energy was photo-chemical technique.

With the theme 'solar energy for development', the seminar was attended by delegates from 11 countries.

Besides India, others are Pakistan, Sri Lanka, Malaysia, Thailand, Belgium, Iran, Philippines, Singapore, Bangla-desh and Indonesia.

Prof. Menon said solar energy would have to play an important role by 2000 A.D., with fossil fuel demands rising considerably.

The main problem today was to utilise solar energy through an appropriate collector and a focussing system and then use this heat for space heating and generation of electricity, he said.

—INDIAN EXPRESS

SEAFOOD INDUSTRY IN A GLOOMY SPELL

The seafood industry of the country is going through a gloomy spell currently, according to Mr. C. Cherian, President, Seafood Exporters Association of India, on account of severe shortage of raw material supplies.

As a consequence of this he pointed out that a number of processing plants, particularly in Kerala region, are virtually idling.

He went on to add that the performance of the industry in 1977-78 did not register any improvement over that of 76-77. And with the current shortage of raw materials the prospects for the running year appear to be gloomy.

Mr. Cherian pointed out that the rapid strides made by the industry so far was mainly because of its sole reliance on shrimp He appealed to exporters to change this by diversification of exports in order to help the industry thrive.

—ECONOMIC TIMES

Fish Meal Export

The Union Government has announced that fish meal with a protein content of 60 per cent or above will be allowed for export freely without any quantitative restriction.

Fish meal with a protein content between 50&60 percent will be allowed within a limited ceiling.

Suitable amendments for this purpose have been made in the export policy for the current year.

— INDIAN EXPRESS

Questions & Answers

Director of Fisheries, Orissa:

Q What is the efficiency and durability of the 27 B. H. P. Kirloskar make RA3M-3 cylinder air cooled marine dieselengines?Will it operate satisfactorily in the shallow northern coast of Orissa when fitted in 30' gill netters? What is the suitability and efficiency of the water cooled marine diesel engines of Kirloskar make for wooden trawlers of 32' and above for mechanised fishing in offshore waters?

A This Institute has not tested any air cooled Kirloskar engine As such it is not possible to offer our opinion about the same. However, it is understood that air-cooled Kirloskar engines are not much used for marine purposes On the other hand, Kirloskar water cooled engines are in use in most of the states and their working has been found to be satisfactory. The engines are suitable for installation in 32 ft wooden trawlers and the fuel consumption of these marine water cooled engines is comparable to other types of marine engines. This Institute has conducted type testing of Kirsloskar water cooled engines R8V 3M (42 H. P. @ 2000 r p m) and RBV2M (28 H P @ 2000 r. p m.) and they have been recommended for use with gill netters also.

Director, M. P. E. D. A., Cochin:

Q We have purchased a small fibreg'ass dinghy of length 4.8m and breadth 1 8m We are examining the possibility of fixing a Greaves Lombardini engine of 9 5 H P. to propel this boat Kindly let us know whether this type of engine is suitable and what speed it is likely to develop in calm water.

A We have tried Lombardini engines of 6H. P. & 5H. P. on our 15ft rowing boat and 14 ft dinghy coupled with the out-board drive of CIFT design and it was observed that the engines performed quite satisfactorily with speed upto 6 knots.

It is felt that the 9.5 H. P. engine coupled with the out-board drive of this Institute's design and installed in your 4.8m fibreglass dinghy may develop a similar or even higher speed. However, the maximum speed can be ascertained only after actual installation of the units on board the vessel.

Dy. Director (Trg), Institute for design of Electrical Measuring Instruments, Bombay:

Q This Institute is exploring the possibilities of developing a simple electrial / electronic gadget which helps

the fishermen in detecting the presence / absence of fish in a given area. In this connection we request you to inform us (1) whether any such gadget presently exists either in our country or abroad (2) if yes, do you have any technical information on the subject and who are the suppliers / makers of that instrument? and finally (3) is it worthwhile to take up such a project or not Also, if you have any other similar gadget in mind, p'ease let us know.

A Available information on the various points raised in your letter is given below. M/s. Bharat Electronics Ltd., Bangalore are manufacturing/equipped to manufacture fish finders. Most of the larger fishing vessels of over 50 ft in length are equipped with echo-sounders and a few large vessels with the more sophisticated sonars for detecting fish shoals. These equipments are, however, all imported and are of a longer range and also rather costly. Smaller types of fish finders and simple fish detecting instruments for use from smaller classes of vessels, which at present constitute the majority of our fishing fleet, are bound to be readily acceptable to the fishing industry.

This Institute has developed a few underwater telemetering instruments, some of which are trawl depth meter, mesh distorsion meter, warpload, meter, temperature salinity meter etc.

Director, M. P. E. D. A. Cochin

Q What are the polyphosphates permitted by FDA of the U S. to prevent drip loss?

A The following phosphates are known to be permitted by the FDA

1. Sodium phosphate (mono, di, and tri-basic)
2. Dipotassium phosphate
3. Sodium tripolyphosphate
4. Sodium pyrophosphate
5. Sodium hexametaphosphate

Recent experiments conducted at this Institute have shown that a solution of a mixture of 9 parts sodium tripolyphosphate, 1 part dipotassium phosphate and 2 parts common salt in 100 parts of water when used at the rate of 80ml kg of prawn meat prevents drip loss, though the treated product would be a little slimy. But the colour of the cooked product would be good. This Institute does not find any harm in recommending the above combination in addition to any other combination which may give the desired effect. But it is necessary to ensure that only good grade chemicals are used and the level of P_2O_5 in the treated product does not exceed 0.5%. It can be maintained below this level by using the chemicals in correct proportion as recommended.

It may also be noted that the phosphates (approved by FDA) noted against 1,2,3, and 4 above (except mono - sodium phosphate) are alkaline in nature and our observation is that treatment of prawn meat in such alkaline solution results in bleaching of colour on cooking of the product and also causes excessive pulpiness of the cooked product. Hence these alkaline phosphates as such cannot be recommended.

ADDITIONS TO CIFT LIBRARY

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Course in Refrigeration and Air-conditioning.

Mathur P. R. G.
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L.F.T.R.I.

Electronics and Instrumentation for Fishery Technology and Industry

The CIFT has developed electronic instruments for different disciplines connected with

A. Commercial fishing
B. Fish processing factories
C. Behaviour studies of marine animals
D. Environmental measurements
E. Testing and standardisation of Trawl system and its accessories

The various instruments developed are:

1. Portable warpload meter for small and medium trawlers
2. Ship-installed warpload meter for permanent installation in large trawlers
3. Electronic boat log
4. Remote sensing freezer temperature and alarm for cold storages
5. Brine concentration meter
6. Barnacle cirri beatings recorder and automatic counter
7. Fish Activity recorder
8. Barnacle shell movements recorder / counter
9. Remote sensing temperatute and salinity meter
10. Remote sensing, Depth, Temperature and Salinity meter
11. Trawl-depth meter
12. Bollard pull monitor
13. Underwater tension meter
14. Board tilts meter
15. Mesh distortions telemeter
16. Catch telemeter
17. Angle of attack meter
18. Net flow meter

The Institute is preparing to supply these instruments to fishing vessels, fishery institutes, universities and other agencies interested in them in limited quantities. Please contact the Director, Central Institute of Fisheries Technology, Matsyapuri P. O., Cochin-682 029.

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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

Please contact:

Director,
C. I. F. T.,
Matsyapuri P. O.
Cochin - 682 029.

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Fish Technology news letter

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN – 682 029

Vol. 1 No. 5 November, 1978

Dr. R Raghu Prasad, Assistant Director General (Fisheries), ICAR, addressing the sixth workshop on All India Coordinated Research Project on Transportation of Fresh Fish and Utilization of Trash Fish. Seated L to R: Shri. G. K. Kuriyan, Director, CIFT, Cochin and Dr. K. P. P. Nambiar, Managing Director, M s. Kerala Fisheries Corporation, Cochin.

(Please see the article on page 7)

EDITORIAL COMMITTEE

1.	Shri. R. Balasubramanian	—	Chairman
2.	Shri. K. C. Purushothaman	—	Secretary
3.	Shri. T. K. Govindan	—	Member
4.	Dr. P. N. Kaul	—	Member

Foreword

C.I.F.T.R.I.

Fishtechnology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a scientific publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of the fish industry.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be duly acknowledged. Special attempts have been made to gather informations useful to the industry from current periodicals for inclusion in the Newsletter Present-day events as well as some of the questionaire received and answers to them given by the Institute which are of interest to the Indian fishing and fish processing industries are also reported briefly.

We welcome suggestions from our readers for improvements in the contents and get-up of the newsletter Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

EDITORIAL COMMITTEE

CANNING OF SMOKED DHOMA

Dhoma (Jewfish, *Sciaenid* spp.) is an important fishery in India. The average annual landing figures for this fish in the country during 1971-76 were 76,684 tonnes. Its distribution is more or less even on both the west and east coasts. This is one of the less utilized varieties among our marine fishes. The Central Institute of Fisheries Technology has been making concerted efforts for about a decade towards evolving better / more economic methods of utilizing such fishes. The Institute has now perfected a procedure for canning of smoked dhoma in oil. Smoking imparts an attractive flavour to the fish which is highly relished by many fish eaters The method developed is described below :

1 PREPARATION OF THE MATERIAL :

Process the fish as early as possible after landing. In case of unavoidable delay, keep the fish well iced. Dress the fish carefully ie; remove the heads, viscera (intestines), tails and fins Wash repeatedly in potable water until free from blood. bits of intestines and any other extraneous matter.

2 BRINING :

Keep the dressed and cleaned fish immersed in salt solution for 15minutes. Prepare the salt solution by dissolving 150 g. refined salt, 5g. potash alum and 2g. citric acid in one litre of water.

3 SMOKING :

Drain the brined fish and suspend them in a smoke kiln by piercing a thin metal rod through the caudal ends and supporting the rods in the kiln. Produce smoke by smouldering (burning slowly without flame) soft wood saw dust and coconut husk. Expose the suspended fish to smoke for 2 hours at 45 $\pm$ 5°C.

4 FILLING IN CANS :

Take out the smoked fish. Cut them into pieces of size suitable to be packed in 8 0z (301 X 206) cans. Fill the pieces in clean, sulphur-resistant-lacquered cans of the above-mentioned size.

5 PRE-COOKING :

Invert the filled cans in perforated trays. This is to drain off the liquid driven out during cooking as and when it is liberated. Load the trays in a retort and cook at 0 35 kg/sq cm (5 lbs/sq in) steam pressure for 50 minutes.

6 FILLING WITH OIL :

Take out the trays and cool under the fan with the cans still in the inverted position to complete draining of the cook - drip. Adjust the filled weights to the required level. Take care to leave a head space of 3 to 6 mm. Fill the cans with hot refined groundnut oil at about 95°C.

7 EXHAUSTING :

Pass the filled cans through an exhaust box through

FISH POWDER FOR HUMAN CONSUMPTION FROM DHOMA

About ten varieties of dhoma (*Sciaenid* spp.) are found in India. Of these, *Otolithus argenteus* and *O ruber* (Malayalam: *Pallikora* and *Chempallikora* respectively) are the most important. The fish is rich in protein. The proximate composition of the meat is given below :

Moisture (water) : 72-77%
Protein : 18-21%
Fat : 2- 5%
(Dry weight basis).
Ash (minerals) : 2-3%
(Dry weight basis.)

The fish shows a tendency to spoil very fast. The fishermen do not care to preserve the fish in ice on board the fishing boats. This is so because they get only a very low price for it even when brought ashore in best quality. The result is that the fish is very stale when landed. The larger sizes of the fish are generally cut open from the belly side and intestines and gills removed. They are then cleaned, split open, salted and sun-dried. The smaller ones are boiled in water, pressed, press-cake, sun-dried and powdered for feeding cattle and poultry. The Central Institute of Fisheries Technology has now developed a simple process for preparing a brownish white or yellowish white powder from this variety of fish. Eight parts of the powder can be mixed with 92 parts of wheat flour for preparing popular Indian dishes like *'Chapathi'*. Such preparations show only a mild fishy taste. The method evolved is as follows :

---

flowing steam (exhausting time: about 8 10 minutes).

8 SEAMING :

Seal the cans with lids immediately after exhausting on a double seamer. Do not allow the can and contents to cool before seaming.

9 PROCESSING :

Fill the sealed cans in crates. Load the crates into the retort. Process at 0.7kg/sq cm (10 lbs/sq in.) steam pressure for one hour.

10 COOLING :

Release the retort pressure gradually. Plunge the crates with processed cans into ice water chlorinated to the level of one part per million of available chlorine.

11 DRYING :

Lift the crates from the cooling tanks. Take out the cans and wipe the outside with a dry cloth to remove adhering water, traces of oil, fish fragments etc. Leave the cans aside for complete drying. Take care to see that the cans are sufficiently warm at the time of wiping to facilitate quick evaporation of any adhering traces of moisture.

12 LABELLING AND PACKING :

Paste attractively printed labels on the cans. Pack the labelled cans in cardboard or plywood cases as per the buyer's demand **

1 PREPARATION OF THE MATERIAL :

Use only fresh fish Wash the fish with potable water to remove slime, dirt and any other unwanted material Remove the scales with a knife by scraping in a direction opposite to that of the scales.

2 FILLETING :

With a sharp knife scrape off the edible meat from both sides of the skeleton in a single piece from each side. This is best done by sowing down the knife half a centimeter below the gill opening on the flat side until the backbone is touched Turn the cutting edge of the knife towards the tail end and scrape in contact with the bone. Take care that portions of the intestines do not get removed along with the meat. Wash the fillets, as they are called, in potable water until free from blood, scales, pieces of intestines, if any, etc and drain in a perforated tray or basket.

3 MINCING :

Mince or grind the cleaned and drained fillets, preferably in an electrically operated wet grinder or mincer.

4 DRYING :

Spread the minced meat uniformly in metallic trays. Dry in the sun or in an artificial dryer. In the former case, take care to see that the material does not get contaminated with sand, flies / insects, extraneous matter etc. Continue drying until moisture level falls below 10%.

5 POWDERING AND SIEVING :

Powder the dried material either in an electric dry grinder or manually in an ordinary coffee grinder. Sift in a 100 mesh sieve.

6 STORING :

Store in dry amber-coloured glass bottles or laminated polythene bags

ALTERNATIVE / IMPROVED METHOD :

1 HEATING :

Suspend one part of the minced meat from stage 3 above in 2 parts of water to which glacial acetic acid has been added at the rate of 0 5% on the weight of the meat, that is to say, if 100 kg of minced meat is taken, use 500 g of acetic acid Stir well to give a fine slurry Heat it to 80°C Maintain at this temperature for 30 minutes with frequent stirring.

2 FILTERING AND DRYING :

Filter the slurry in a canvas bag. Press in a screw press to remove as much free liquid as possible. Dry and proceed further as in the first method.

3 YIELD :

First procedure : 99% of the fresh fish.
Second procedure : 73%

4 COLOUR AND SMELL :

First procedure : Brownish white, moderate fishy smell
Second procedure : Yellowish white, faint fishy smell.

COPPER - NICKEL CAGES FOR COASTAL MARICULTURE

Mariculture or farming of the sea has attained worldwide recognition. In cage culture, an important problem is fouling which reduces water quality and slows down the growth of the fin fish or shell fish. Most metals corrode in sea water.

Based upon the corrosion and fouling resistance demonstrated by the cupro-nickel (90 : 10), the basic problem in the edge-of-the-sea farming can be solved by using copper nickel alloys for the cages and screens. **

SIXTH WORKSHOP ON ALL INDIA COORDINATED RESEARCH PROJECT ON TRANSPORTATION OF FRESH FISH AND UTILIZATION OF TRASH FISH

(This is one of the fifty All India Coordinated Research Projects functioning as on date under the Indian Council of Agricultural Research. It went into operation towards the end of the Fourth Five Year Plan. Its coordinating centre is at the Central Institute of Fisheries Technology, Cochin. Other centres function at Veraval, Bombay, Madras, Kakinada, Calcutta, Mangalore, Ratnagiri, Kujang and Okha.)

The workshop was held at the College of Fisheries, Matsyanagar, Kankanady, Mangalore on 3rd and 4th November 1978. Dr. R. Raghu Prasad, Assistant Director General (Fisheries), Indian Council of Agricultural Research, NewDelhi, in his introductory remarks thanked the University of Agricultural Sciences for hosting the workshop at Mangalore. He said that the Council has accepted the recommendations of the Review Committee headed by Dr. K. K. Iyya. According to these recommendations, the proposed objectives of this research project have been achieved successfully and the necessary solutions to the problems completely obtained. Dr. Prasad suggested that since the project is to be discontinued at the end of this financial year, the scientists of the different research centres should utilize the remaining plan period for completing pending items of investigations if any. These could be discussed and finalised in the concluding session of the workshop.

FIRST TECHNICAL SESSION

Dr. K. P. P. Nambiar, Managing Director, M/s, Kerala Fisheries Corporation, Cochin, chaired this session. It dealt with transportation of fresh fish The Chairman stressed the need for building up information on the biochemical and bacteriological aspects of preservation of tropical fishes. Such informations would help to develop suitable technology for transportation of fresh fish in this country. Dr Nambiar also said that development of technology for transporting live fish, lobster, eel larva etc. is very important for fish culture and export of fishery products. Both these are gaining importance these days, he added.

WORK AT VERAVAL CENTRE

Mr. K. Devadasan, Scientist-in-charge of the centre, presenting progress report of his centre, said that the the efficiency of the container developed under the project was proved beyond doubt by subjecting it to tests under the most rigorous conditions. Iced fish consign-

A view of the delegates

ments were transported in it over 2500 KM at the height of summer when the ambient temperature was as high as 45°C.

WORK AT BOMBAY CENTRE

Shri A. P. Valsan, Scientist in-charge, reported that the fish consignments received from Veraval were assessed for quality with reference to organoleptic, biochemical and bacteriological parameters.

WORK AT KAKINADA CENTRE

Dr. C.C. Panduranga Rao, Scientist-in-charge, gave an account of the studies made on the amenability of different varieties of fishes in iced and frozen conditions to transportation from Kakinada to Howrah and also to Madras.

WORK AT CALCUTTA CENTRE

The report from Jadavpur University, Calcutta, gave an overall picture of the quality of fish consignments received from Veraval and Kakinada. The organoleptic conditions of the fish samples varied from 'good-fair' to 'fair' with absence of faecal indicator and pathogenic organisms.

WORK AT MADRAS CENTRE

Shri. S T. Chari, Joint Director of fisheries, Tamil Nadu presented the work on transportation of fish at Madras Centre. He said that all consignments of fish except one of pomfret received at Madras were of good quality from organoleptic, biochemical and bacteriological points of view.

STATISTICAL WORK AT COORDINATING CENTRE

Shri G. Rajagopalan Unnithan, Statistician attached to the coordinating centre, dealt at length with cost and quality aspects involved in the transportation of fish.

SECOND TECHNICAL SESSION

This session on utilization of trash fish was presided over by Dr. N. L. Lahiri, Professor & Head of the Department of Fish Processing Technology, College of Fisheries, Mangalore.

WORK AT COCHIN CENTRE

Dr. K. Gopakumar, Scientist-in-charge, reviewed the work carried out on development of fish peptone, fish hydrolysate, canned pet food and fish fingers from fish varieties of low economic value.

WORK AT MANGALORE CENTRE

Mr T. C. Chandrasekhar, Technologist at the centre reported that his centre has developed 'fish shavings' from

smoke-cured lizard fish. The product had a storage life of over five months at ambient temperature.

WORK AT MADRAS CENTRE

The work carried out at the centre on fish ensilage and preparation of shark cakes and good quality dried flying fish was presented by Shri R. Srinivasan, Joint Director, Department of Fisheries, Tamil Nadu.

WORK AT RATNAGIRI CENTRE

Shri M. S. Chandige of the centre gave an account of the products developed from non-penaeid prawns.

WORK AT OKHA CENTRE

Preparation of edible protein powder from less costly fishes of Gujarat coast formed the major item of work at Port Okha centre. This was reported by Shri R. G Dabhi, Assistant Director of Fisheries, Gujarat, who is in charge of the centre.

BENEFITS TO TRIBAL AREAS

Shri. M. R Nair, Project Coordinator, reveiewed the work carried out for the benefit of the tribal areas at different centres of the research project.

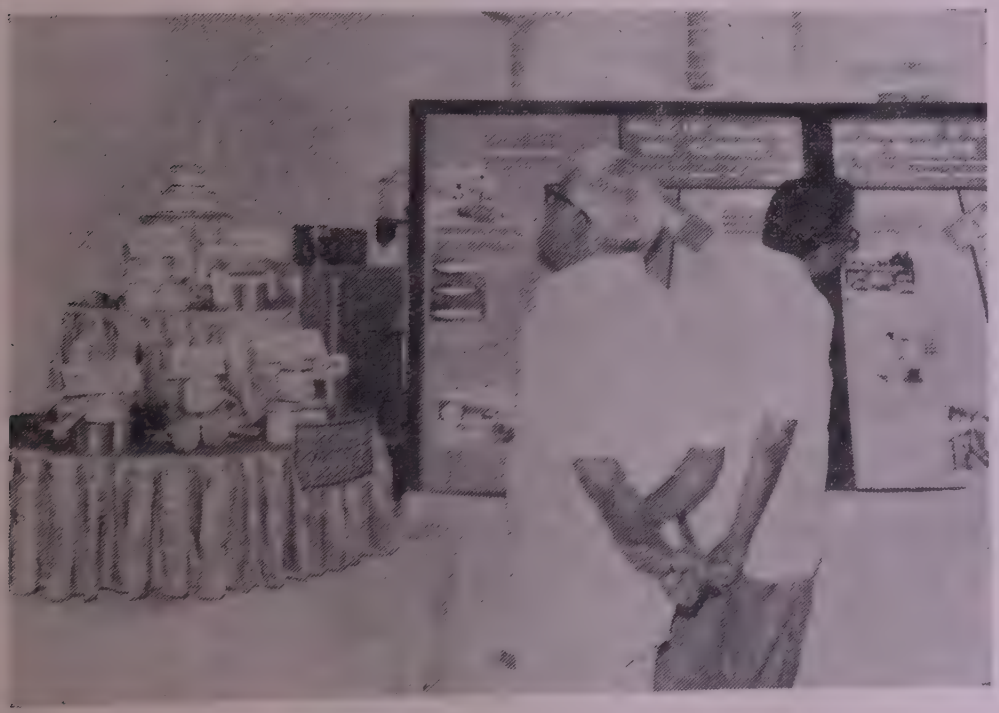
Dr. N. L. Lahiri stated in his concluding remarks that the scientists should work out a realistic approach to determine the cost aspects of all the developed products, ready for release to the industry.

THIRD TECHNICAL SESSION

This session was chaired by Shri G. K. Kuriyan, Director, Central Institute of Fisheries Technology, Cochin. The project Coordinator outlined the follow-up action taken on the recommendations of the last workshop. He also reviewed the overall progress of the work carried out under the project. The technical programme of the work to be carried out under the project for the remaining plan period was discussed and finalised at this session.

DELEGATES

A large number of delegates from research institutions like Central Marine Fisheries Research Institute, Central Institute of Fisheries Technology, Central Food Technological Research Institute, State Fisheries Departments. Fisheries development corporations, Agricultural Universities, Export Inspection Agency, Marine Products Export Development Authority and fish processing industry attended the workshop and actively participated in the deliberations of the technical sessions.



Display of the specially products developed under the project at the College of Fisheries, Mangalore.

C.F.T.R.I.
MANGALORE.

MAN-MADE FIBRES FOR FISHING NETS

NATURAL V/S SYNTHETIC FIBRES

Until recently only natural fibres like cotton, hemp, jute etc. were used for making fishing nets. But now a host of synthetic or man-made fibres are available for the purpose. The main difference between the two is that natural fibres are of limited lengths, while synthetic ones can be made in unlimited lengths. Man-made fibres belong to different groups like polyamide, polyester, polyethylene, polyvinyl alcohol, polyacrylonitrile etc. They are produced by polymerisation of organic raw materials obtained from petroleum, natural gas, hydro-carbons from other sources, grains, cobs, oat-hulls, lime and coal. Polymerisation is the chemical combination of several units or molecules of the same simple substance to give complicated long chain compounds of very high molecular weights.

ADVANTAGES OF SYNTHETIC FIBRES

The advantages of synthetic fibres over natural ones are better strength, fineness, durability and rot-proofness. Their comparatively higher costs are more than compensated by their longer service lives. The prevailing cost of nylon is Rs. 90 - 110/kg. and that of polyethylene Rs. 25-35/kg.

NATURAL AND SYNTHETIC YARNS

Yarns are of four types. Spun natural fibre is called a "Staple yarn". 'Monofilament" and "Multifilament" yarns are of synthetic origin and contain one or more filaments in a single yarn. A fourth type of yarn is in the form of flat ribbon-like tape which is either fibrillated or non-fibrillated. In India, polyamide is generally used as multifilament yarn under different trade names viz; nylon, garnyl, tuflon, nirlon etc, while polyethylene is used as monofilament.

MANUFACTURE OF SYNTHETIC YARNS IN INDIA

At present there are five factories producing multifilament nylon yarns and a dozen making monofilament polyethylene yarns. The country is also now self-sufficient in caprolactum, the raw material for nylon. This material used to be imported till recently. The entire requirement of the country in nylon fish net twines is now met by indigenous production.

YARNS INTO TWINES

Yarns are made into twines of different thicknesses by twisting or braiding. Definite numbers of yarns are first twisted into strands. Definite numbers of these strands are then twisted in directions opposite to those in which the yarns have been twisted to give twines. The direction of twist is designated 'S' or 'Z' depending on whether it is made in left hand or right hand direction. Braided twines are made by plaiting or weaving fine yarns in round shape with or without a core.

TWINE SPECIFICATIONS

Monofilament twines are usually designated by their diameters. Multifilament twines are defined by three numbers like 210/a b, where 210 is the Denier value. a is the number of yarns in the strand and b is the number of strands in the twine. One denier means that the weight of 450 metres of a single yarn is 0.05g. Hence 210d means 0 05 x 210= 10.5g./450 metres of single yarn.

ADVANTAGES OF GILL NETS MADE WITH MULTIFILAMENT TWINES

Multifilament twines of several specifications are produced But only finer diameter ones like 210/1 or 2/2 and 220/1 to 9/3 are preferred by the fishing (gill) net industry. This is so because flexible, strong and fine twine is most suitab'e for gill nets. This is a passive gear where the fishes get caught unawares during their usual movements. Hence the comparative invisibility of the net while in water due to the fineness of the twine is an added advantage. Finer twines are usually employed in inland gill nets for catla and carps and in marine nets for sardine, mackerel and prawn. Comparatively thicker diameter twines have to be used for gill nets for seer, pomfret and lobster. Replacement of cotton twines in gill nets with synthetics of the same diameter renders the net twice as strong and 25 to 30% lighter. Catches obtained in these nets are nine times more in terms of weight and 7.6 times more in terms of number than in nets made of cotton twines.

OTHER USES OF POLYETHYLENE TWINES

Polyethylene monofilament twines of diameter 0.5 to 3.0 mm. and ropes of diameter upto 18 mm. are also being manufactured. These find use in trawl nets and troll lines as they require strength and extensibility for absorbing shock loads. A cotton twine net having a mesh strength in water equal to that of polyethylene monofilament twine net weighs 11.35 times as much as the latter. Nets made of this synthetic material in filament and tape forms are 1 8 and 2 7 times more efficient than those made with cotton twines. Some other applications of the synthetic materiai are in the wings of stake-nets and Chinese dip nets and selvage meshes of gill nets. Two to three meshes at the top and bottom edges of gill nets are usually made of stronger twines and bigger mesh sizes. These are called 'selvage' or 'selvedge' meshes.

The dara gill nets of Maharashtra coast used to employ only imported hemp twines till recently. Now-a-days they have also switched over to polyethylene monofilament twines. Nylon made into knot-less purse-seine nets has got good strength and water-shedding capacities. They are light and less bulky than cotton nets. Hence they require less labour in handling.

QUALITY STANDARDS

The Central Institute of Fisheries Technology has carried out extensive studies on the suitability of synthetic twines for fishing purposes. Quality standards for different types of synthetic twines have also been drawn up The Indian Standards Institution has formulated national standards for these commodities making use of the data provided by this Institute. All manufacturers in India now follow these standards.

FAO/DANIDA WORKSHOP ON FISH TECHNOLOGY AND INSPECTION

A workshop on Fish Technology and Inspection was organised under the FAO/ DANIDA Cooperative Programme from 16th October to 24th November 1978 at the Institute of Fish Technology, Colombo, Sri Lanka. Shri. Cyriac Mathen, Scientist S-2, was deputed by CIFT to take part in the same. Other delegates from India were one each from the Central Food Technological Research Institute, Mysore, Marine Products Export Development Authority, Cochin and University of Agricultural Sciences, Bangalore - College of Fisheries, Mangalore.

The workshop dealt with several matters like: 1) fish and shell fish handling, processing and distribution practices and their short comings, 2) technology and spoilage of fish and shell fish, 3) extension activities for disseminating information on the above aspects, 4) implementation and/or improvement of fish inspection and quality control activities, 5) simple chemical, microbiological and taste pannel methodolcgies for quality assessment of fish products, 6) short term investigations on quality aspects production tech-

Participants of the workshop with the Lecturers. Standing sixth from right is the Institute s deputee.

nology and presentation of their results and 7) field visits to fish landing areas, processing plants, cold storages, ware-houses and retail outlets. Besides a series of lectures on the above topics by experts in the field from all over the world and practical work in the laboratory, the participants (24 in number) were divided into eleven groups and entrusted with short term project works on various aspects

Sixteen numbers of film strips and slides on the subject were displayed and about sixty publications containing current literature on the topic of the workshop by authorities in the respective fields from all over the world were distributed to the participants The group discussions held during the course brought out among other things that 1) The quality control and pre-shipment inspection systems being followed in our country are as efficient as those in any of the developed countries. 2) We lag behind may other countries in the matter of enforcing quality control measures of any sort in the case of fish products for internal consumption, 3) There is urgent need for revitalising and modernising our fish curing industry which being the cheapest and easiest avenue for processing as well as for transportation of the products, is the most suited under the present circumstances to meet the protein requirements of the poorer sector of our population and 4) There is plenty of scope and urgent need for expanding the extension activities on these aspects in our country.

●

R. S. Nair Retires

Mr. R. Sreedharan Nair retired as Assistant Fishery Scientist (Craft & Gear) on 30th November 1978 after a meritorious service of 20 years in this Institute. Earlier to joining C. I. F. T. as Research Assistant (Craft & Gear) in May 1958 (which post he held for 5½ years), Mr. Nair served the Gujarat State Government as Fisheries Officer for 6½ years from November 1951. It was Mr. Nair's privilege to serve the Indian Army as Section Officer for 6 years from 1941 at the climax of World War II.

Born in Trivandrum on 26-11-1918, Mr. Nair took his Diploma in Fisheries Technology & Navigation from Government Polytechnic, Madras, in 1950. At C. I. F. T., he was associated with investigations on development of various fishing gears suitable for Indian waters, especially trawl nets. He also served at the Burla and Veraval Research Centres of the Institute for varying periods. He has authored 12 scientific publications in his field of research and had opportunity to work with Dr. H Miyamoto, FAO Expert on Fishing Gear attached to the Institute in its formative years.

◆

APPOINTMENTS

The following appointments have been made at the Institute Headquarters:

1. Mr. R. Balasubramanian — Scientist Grade S-3 in charge of Craft & Gear Materials Division.
2. Dr. Pran Nath Kaul — Scientist Grade S-3 in charge of Extension, Information & Statistics Division.

FIVE YEARLY ASSESSMENT

As a result of the assessment held in 1978, the following promotions / grant of advance increments have been effected from 1-7-1976. The Scientists continue to work in their respective places of duty.

I. Promotion from Grade S-1 (700-1300) to Grade S-2 (1100-1600):

1. Mr. K. K. Solanki (Veraval)
2. ,, P. A. Panicker (Cochin)
3. ,, H. N. Mhalathkar (Goa)
4. ,, P K. Chakraborty (Cochin)
5. ,, K. Krishna Rao (On deputation to Pelagic Fisheries Project, Cochin)
6. ,, H. Krishna Iyer (Cochin)
7. ,, M. K. Kandoran (Cochin)

II. Promotion from Grade S (550-900) to Grade S-1 (700-1300):

1. Dr. M. Shahul Hameed (On deputation to University of Cochin)
2. Mr. T. P. George (Goa)
3. ,, V. Vijayan (Cochin)
4. ,, P. George Mathai (Cochin)
5. ,, P. K. Vijayan (Cochin)
6. ,, K. Gopalakrishnan (Cochin)
7. ,, K. Ramakrishnan (Cochin)
8. Mrs. K. Vijayabharathi (Cochin)

III. Grant of advance increments:

Scientist	Grade	No. of advance increments	Place of duty
1. Mr. P. D. Antony*	S-1 (700-1300)	Three	Cochin
2. ,, P. S. Rao	S (500-900)	Two	,,
3. ,, G. R. Unnithan	,,	,,	,,
4. ,, K George Joseph	,,	,,	Calicut
5. ,, A. C. Kuttappan	,,	,,	Veraval
6. ,, O. P. Pande*	,,	One	(On deputation to I.V. R.I.)
7. Mrs. R. Thankamma	,,	,,	Cochin
8. Dr. M. D. Verghese*	,,	Three	Burla

* With effect from 1-7-1977.

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Director,
C. I. F T.,
Matsyapuri P. O.
Cochin - 682 029.

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Fish Technology news letter

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN – 682 029

Vol. 1 No. 6 December, 1978

20.6.79

'SINDHUKUMARI' second of the 15M trawler designed and built by the Institute for offshore fishing (Report on page 4)

EDITORIAL COMMITTEE

1.	Shri. R. Balasubramanian	—	Chairman
2.	Shri. K. C. Purushothaman	—	Secretary
3.	Shri. T. K. Govindan	—	Member
4.	Dr. P. N. Kaul	—	Member

Foreword

Fishtechnology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a scientific publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of the fish industry.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be duly acknowledged. Special attempts have been made to gather informations useful to the industry from current periodicals for inclusion in the Newsletter. Present-day events as well as some of the questions received and answers to them given by the Institute which are of interest to the Indian fishing and fish processing industries are also reported briefly.

We welcome suggestions from our readers for improvements in the contents and get-up of the newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

EDITORIAL COMMITTEE

15 METRE MECHANISED COMBINATION FISHING VESSEL "SINDHUKUMARI" OF THE C. I. F. T.

Following the successful performance of a 15 metre prototype mechanised fishing vessel (FISH TECH No 8) to CIFT design and requirements, yet another 15 metre combination vessel 'SINDHUKUMARI' built during 1969 has now completed ten years of useful service with the CIFT having taken part in innumerable and extensive experimental as well as exploratory fishing voyages off the Kerala coast.

The following fishing operations were conducted from "SINDHUKUMARI"

a) Pelagic trawling b) Mid-water trawling c) Bottom-trawling for shrimps d) Experimental squid-jigging e) trolling lines and f) inshore purse-seining besides general coastal survey work. With the installation of a suitable gurdy and line hauler both gill netting and long lining can also be carried out.

Main dimensions of the boat:

Length overall : 15.24 M (50' - 0")

Beam maximum : 4.27 M (14' - 6")

Draft mean : 1.37 M (4' - 6")

Main engine : 120-150 BHP Recommended

With a displacement of 35 tons, the boat can develop a speed of 8 knots with engine running at 1800 r. p. m.

MAIN CHARACTERISTICS :

The boat has a raked stem, transom stern, significant sheer and a short raised deck forward. Deck lay-out has been arranged to permit the full use of both fore and aft spaces for fishing purposes. The skipper at the wheel will have a good view all around.

Steering gear compartment, fishing gear stores and engine room are aft of midship. Forwards, are located the capacious fish-hold (6 tons fish and 6 tons ice) and berthing space for four crew members aft of forepeak, wheel - house amid ship, houses a galley, water closet, one entrance to the engine room and berth for two crew members besides navigational and fish finding equipments.

Fuel and fresh-water capacities of 3000 and 1800 litres respectively are sufficient for her stay at sea for five to six days.

The ample stability of the boat under worst conditions of fishing operations and loading is a notable feature of the design. Because of ideal stability characteristics of the boat the use of heavy rigging for "double rig" trawling is also possible. In the fully loaded condition the boat has a free-board of 0.75 metres and this will enable to keep the deck dry even in rough seas. Following the practice of the Institute to reduce the cost of fishing boats with newer and cheaper construction materials, "SINDHUKUMARI" is entirely built of well seasoned venteak wood (*Lagerstroemia lanceolata*), hot-dip galvanized iron fastenings, marine quality aluminium alloy hull sheathing, cast iron under-water fittings and a standard schedule of protective paint ng scheme as per CIFT's specification throughout. The use of these newer materials has considerably reduced the cost of the hull by about 35 per cent. (Photograph of "SINDHUKUMARI" appears on the cover page.)

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EDIBLE PROTEIN FROM JAWLA PRAWNS AND SQUILLA

The Central Institute of Fisheries Technology has worked out a simple process for isolating edible proteins from Jawla prawns and squilla, two shell fishes abundantly available in East and West Coasts of India The proteins extracted in the form of powder can be incorporated in wheat, rice or Bengal gram flours for preparing popular Indian dishes and snacks like Chappathi, Puri, diamond cuts, omapodi, murukku etc.

Jawla prawn is mainly landed in Maharashtra and Gujarat States on the West coast and Andhra Pradesh on the East coast. Its size is so small (2 to 3 cm.) that separation of the meat portion by peeling is impossible. The only method of its utilization at present is by drying on the beach and sending to interior markets.

Squilla, contemptuously called 'poochi', is another shell fish caught in large quantities along with prawns in trawl nets. Fishermen usually throw them back into the sea as they are not used for edible purposes. Of late, small quantities of it are cooked, dried and powdered to yield squilla meal.

Both Jawla prawns and squilla are fairly rich in proteins as shown by their proximate composition given below:

	Jawla prawn	Squilla
Moisture %	78.40	76.86
Protein on dry weight basis %	71.86	47.56
Fat % ,,	5.21	2.90
Ash % ,,	17.30	28.93

Preparation: Sort out the Jawla prawns and squilla separately. Use them in as fresh a state as possible. Wash them clean with potable water, removing slime, dirt and other unwanted materials.

Grind them separately with equal quantities of potable water in an electric grinder/mixer. Filter the slurry obtained through a sieve to hold back the chitinous (shell) material.

Heat the shell free slurry at 112°C for 15 to 20 minutes. The proteins get almost completely coagulated and precipitated during this treatment. Filter the mixture in a canvas cloth, collecting the proteins in the cloth. Squeeze out the free liquid. Dry the proteins in the sun or preferably under vacuum at 45 to 50°C and powder. The average recovery of proteins is 66.3% of the original in the case of Jawla prawns and 73.23% in the case of Squilla.

The recovered proteins contain only very little quantities of chitinous (shell) material The powder is of pinkish colour in the case of prawns and brownish in the other case. Drying under vacuum imparts a more attractive colour to the product than drying in the sun.

FIBRE GLASS

Central Glass & Ceramics Research Institute (CGCRI), Calcutta has developed a technology for the production of fibre glass in the small scale sector with a smaller investment of a few lakhs of rupees. Till today only large units have been manufacturing fibre glass in the country with foreign collaboration involving a heavy capital investment of several crores of Rupees. The technology developed by CGCRI is economically viable as well as appropriate for our country.

The fibre glass is used for the manufacture of reinforcement fibres in the form of rovings, diamond woven mat and chopped strands using commercially available neutral glass rods as the starting material. Fibre glass reinforced plastics are used in transport industry, production of containers, furnitures, Chemical plants and equipments, pipes etc.

Fibres in composite specimens have been prepared using these fibres in the form of diamond, woven mat and polyester resin, and have been tested at the Institute and also at the Vikram Sarabhai Space Centre. The results show that the specimens are 2.5 to 3 times stronger than those prepared from commercial chopped strand mat under identical conditions.

Present installed capacity of glass fibre in India is only 1000 tonnes per annum which is being manufactured by M/s Fibre Glass Pilkington However, the estimated demand of fibre glass is several thousand tonnes, provided the material is available at a lower price.

Process Developed

Glass rods are fed at a controlled rate into an electrically heated furnace. As the tips of the rods get softened the glass is drawn out in the form of fibres and wound in a 'Collet' drum rotating at a predetermined rate. The fibre 'Cake' collected in the drum is then dried and reworked to get diamond woven mat or roving.

The laboratory has produced material at the rate of 0.5 kg. per hour. However a pilot plant of the capacity 1 2 kg/hr has been designed and is still in operation at the Institute.

Commercial neutral glass rods of *IS* type *I* or sodaglass are the raw materials required. These are available indigenously.

The cost of production has been worked out to Rs. 20/kg taking into account the selling price Rs. 27/kg. and the profitability Rs. 5/kg.

Economics of the Plant

Building	:	1,000 Sq. ft. shed is required for making a small unit.
Suggested economic unit of plant	:	100 Kg. / day of fibre glass.
Capital investment on plant and equipment	:	Rs. 1.2 lakh
Working capital	:	Rs. 1.2 lakh (90 days production cost)
Electricity	:	400 kwh per day.

(Source: NRDC - New Delhi)

PREPARATION OF CHITOSAN FROM PRAWN SHELL WASTE AND SQUILLA

What is chitosan?

Chitosan is a high molecular weight compound. It is formed by polymerisation (intercombination) of a chemical compound called 'amino glucose'. Naturally it is derived from a material called 'chitin'. This latter is the main constituent of the shells of marine animals like prawns, lobsters, crabs, squilla etc.

Raw material:

About 40,000 tonnes of prawn head and shell wastes are thrown out of our freezing and canning factories every year. It is mostly wasted now. Small quantities of it are dried and powdered for use as cattle and poultry feed and manure. At present we have no idea as to how much our squilla resources are. On the basis of a very rough approximation made by our scientists, about 7500 tonnes of this material also will be available annually if attempts are made to collect it.

Chemical composition:

Both prawn waste and squilla have got very similar chemical compositions as seen below:

	Prawn waste	Squilla
Moisture %	76.62	78 84
Protein: % on dry weight basis	39.76	44 71
Fat: % "	5.05	2.68
Chitin: % "	23.08	14 70
Ash: % "	31.13	35.42

Removal of protein:

Wash the raw material well with water. Boil it in dilute caustic soda solution for one hour, using 3kg. of the solution for 2 kg. of the raw material. Dissolve caustic soda at the rate of 1 kg. per 100 kg. of water. Decant the watery extract. Boil the residue once again in caustic soda solution of the same strength for the same time. Decant the extract and preserve for isolation of the protein.

Bleaching:

Keep the shell residue under bleaching powder solution or dilute bleach liquor for 30 minutes. The solution must contain 5 g. of available chlorine per litre of water. This bleaches all the pigments contained in the material.

Demineralisation:

Drain off the bleaching powder solution. Wash the residue with water once and decant off the washings. Immerse the residue in dilute hydrochloric acid (concentrated acid diluted with 7 times its

Seminar on the Role of Small-scale Fisheries and Coastal aquaculture in Integrated Rural Development

A four-day seminar on the above subject was organised by the Central Marine Fisheries Research Institute, Cochin. from 6th December 1978 at Madras. It was inaugurated by Mr G. R. Edmund, Hon'able Minister for Food and Fisheries, Government of Tamil Nadu. The function was presided over by Dr. R. Raghu prasad, Assistant Director General (Fisheries), ICAR, New Delhi. The technical discussions were conducted in eight sessions. The topics of discussion for the different sessions were: (1) Present status of small scale fisheries and coastal aquaculture, (2) Socio-economic conditions of the coastal rural sector, (3) Resource potential for capture and culture fisheries in the costal region, (4) Technological base for integrated rural development (5) Post-harvest technology, (6) Manpower requirements and training, (7) Financing of intergrated projects and (8) Public policies and planning of rural fisheries.

The Central Institute of Fisheries Technology was represented at the seminar by M/s. M. R. Nair, Scientist S-3 and P. V. Prabhu, Scientist S-2 led by Mr G. K. Kuriyan, Director. The key-note address to the fifth session ie, post harvest technology was delivered by the leader of the team. He enumerated at length the research and development efforts being made in the country towards fuller utilization of one fishery resources. A scientific paper entitled "Utilization of conventional and non-conventional marine products and scope for expaning the consumer sector" by

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weight of water) for one hour. Decant off the acidic solution. This removes all the mineral matter. Wash once with fresh water and decant. The residue left is 'chitin'.

NOTE: The steps of bleaching and demineralisation can be avoided in the case of squilla.

Deacetylation:

Treat the chitin residue with an equal weight of strong caustic soda solution at 100° C for 90 minutes. Prepare the caustic soda solution by dissolving 1 Kg of the material in 1 kg of water, Decant the alkali after the treatment and use it for treating further batches of the chitin. Wash the residue with water and decant off the washings. Repeat washing until the residue is completely free from alkali.

Drying and pulverising:

Dry the residue in the sun and powder in a grinding mill. The power obtained is chitosan ready for use.

Properties and uses:

One kg of chitosan dissolved in 100 kg of water containing 1 kg of glacial acetic acid gives a highly viscous (thick) solution. The product has got several industrial uses. It finds application in sizing of cotton, wool and synthetic fibres like rayon, glazing of paper and cellophane, as adhesives, and thickening agents and in pharmaceutical and cosmetic preparations It can also be used for clarification of water and wine and as a general flocculant in metallurgical and other industries.

M. R. Nair and T. K. Govindan was presented by the first author in this session. The paper dealt in detail with the utilization of fish by the hereditary methods and the developmental work carried out at CIFT towards modern methods of utilization. It also suggested various ways and means for expanding the consumer sector in both the above broad lines of utilization of our vast fishery resources.

A third scientific paper was presented by Mr. P. V. Prabhu It was entitled "Development of low-cost processing technology for flshes and shell fishes" and co-authored by Mr. K. K. Balachandran of this Institute. The paper hightighted the low-cost processing methods worked out for fish preservation suitable to our rural population vis-a-vis the high cost technology at present being employed in the country for catering to the affluent export markets.

The seminar recommended among other matters that improvements should be effected to the existing crafts and gears using local materials and expertise. Besides the conventional timber used at present, suitable alternative material must be identified, tested and made available for construction of fishing crafts. Simple and effective preservation and processing techniques should be evolved within the technical ability and economic capacity of fishermen. Particular attention must be paid to the use of solar energy. Fish curing yards with required facilities should be established/re-established. Canning of fish in suitable cheap containers should be evolved. Steps must be taken to minimise loss of protein quality and vitamin contents during processing of fish.

Seminar on Small-scale Food Industry For Rural India

The eastern regional branch of the Association of Food Scientists and Technologists (India) organised a seminar on the above topic on 9th and 10th December 1978 at Calcutta. Mr. T. N Singh, Governor of West Bengal, inaugurated the seminar. Mr. Sudhin Kumar, Hon' able Food Minister of the State was the chielf guest.

The four technical sessions of the seminar dealt with (1) Cereal and cereal products (2) Fruit, vegetable products, edible oil and spices, (3) Fish and poultry and (4) Service to rural food industry. The third session on fish and poultry was chaired by Dr. M. N. Moorjani, Project Co-ordinator and Head, Meat Fish and Poultry, Technology Discipline, Central Food Technological Research Institute Mysore. The Co-chairman was Mr. M. r. Nair, Project Coordinator, CIFT, Cochin, who represented this Institute at the seminar. In his opening remarks, the Co-chairman gave a gist of the research and devement activities being undertaken at the CIFT towards utilization of our fishery resources as raw materials for small scale industries in rural India. He also presented two scientific papers from this Institute at the session viz; (1) "Fish products for rural industries" by K. Gopakumar, A. Vasanth Shenoi and R.

Thankamma and (2) "Small scale project on dehydration of fish" by P. K. Chakraborty. on behalf of the anthors who could not attend the seminar.

The first paper dealt with methods developed at CIFT for preparation of fish wafers and powder usingmiscellaneous by catches. Both the products can be prepared in rural areas without much complicated machineries. The former prepared by blending the picked meat with tapioca starch has a shelf life of two years. It can be directly fried in oil and served. The latter product from minced fish meat alone and containing 80% protein has a shelf life of six months. It has proved its worth in combatting protein mal-naturition in children of under-fed rural and tribal population. The second paper dealt with the design details of a one tonne per day capacity tunnel drayer. It can be set up under the small scale sector at a cost of Rs. 1 65 lakhs. The trawler by catches can be economically utilized by dehydration in this equipment.

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Seminar on Quality Control of Processed Foods

The Trivandrum Chapter of the Association of Food Scientists and Technologists (India) organised an All India Seminar on the above subject on 15th and 16th December 1978 at Kanakakunnu Palace, Trivandrum. A team of scientists comprising S/Shri Cyriac Mathen and M. Arul James led by Shri T.K. Govindan represented the CIFT at the Seminar which was held in three technical sessions viz; 1) General, 2) Plant Products and 3) Animal Products spread on both days

A technical paper entitled "Quality Control of Fishery Products" by T.K. Govindan and G.K. Kuriyan was presented in the third techinical session by the first author, highlighting the urgent need for introducing a phased programme of quality control for fresh and cured fish products which constitute 67% and 20% respectively of our total annual fish landings of 2.3 million tonnes and which is almost entirely consumed in the internal market.

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Ferrocement Fishing Boats

A 16.5m (54) ferrocement albacorevessel,SIUSAN CLIPPER is reported to have fared very well in the usually heavy weather on the tuna grounds about 160 KM (100 miles) off the northern California coast of U. S A. With the prototype proven rugged and safe, the manufacturers have decided to build more vessels of this type. Subsequent hulls are expected to be finished quickly. A hull and deck moulding can be completed in about one month. The skipper is confident that the maintenance costs are lower than those for an equivalent boat built of wood or steel. Also his insurance premia are lower and the carrying capacity larger than those for similar boats built of conventional materials.

The SUISAN CLIPPER is powered by a 250 HP engine turning the propeller through a 3.8 : 1 reduction gear box for a speed of about 10 knots at 1600 rpm Fuel and fresh water capacities are about 2000 and 500 gallons respedtipely. Radar, Loran. Autopilot and other electronic equipments are also provided.

As per the findings of the CIFT, ferrocement fishing boats in the size range of 12-18M OAL are lighter in weight and cheaper in price than the conventional wooden and steel counterparts for fishing operations in the off-shore waters of the Indian coasts.

GLEANINGS FROM OTHER JOURNALS

BIG SCOPE FOR PRAWN CULTURE IN KERALA

"Post-larvae of tiger shrimp have been discovered for the first time in the Cochin backwaters. The location of this seed source opened up possibilities of developing prawn culture in Kerala". This is the view expressed by the Third Workshop on All India Co-ordinated Research Project on Brackish Water Fish and Prawn Culture held during last month at the Central Institute of Fisheries Technology, Cochin. The workshop was jointly sponsored by the Central Inland Fisheries Research Institute, Barrackpur, Calcutta and the Kerala Agricultural University. In Kerala one prawn culture project has already been started at Vyttila under the above mentioned University. The CIFRI shrimp culture centre at Kakdwip (West Bengal) has produced an annual yield of 500 kg./hectare/year. Polyculture of prawn with fish is being practiced in Kakdwip, Orissa, Andhra Pradesh and Goa where prawns are being cultured along with mullets.

—THE HINDU

First Fishing Vessel Launched at Goa Yard

"Matsya Harini", the first exploratory fishing vessel built by M/s. Goa Ship Yard Ltd., was launched on 14th November 1978. This was the first of the six exploratory and training vessels to be constructed at Goa Ship Yard under the financial and technical assistance programme of the Norwegian Agency, the NORAD. These vessels will be used for exploratory fishing, survey and charting of fishing grounds, evaluation of fishing gear and methods as well as training of personnel.

The vessel launched is a survey version meant for the Exploratory Fisheries Project, Bombay. It has an overall length of 32.49 metres and refrigerated cargo hold capacity of 130 tonnes. It is capable of staying at sea in fishing / operational areas for a continuous duration of three weeks. It is to carry out modern trawling, purse seining and long-lining experiments employing sophisticated electronic fish finding equipments including a very powerful sonar, two echo-sounders and a trawl eye. While the sonar can indicate presence of fish within 1 KM range of the ship, the echo sounders help to indicate the fish and its intensity right below the ship. The trawl eye

FISH PRODUCTION MOVES UP

Production and export of fish is acquiring a prominent place on the commercial map of India. In 1977 – 78 the fish production was 25 4 lakh tonnes as against 24 lakhs in 1976-77. The export earnings from marine products in 1977-78 were Rs 180.95 crores as compared to Rs. 189.12 crores during 1976-77. The decline in terms of value was due to appreciation of the value of Indian currency vis-a-vis U.S. dollars. The proposed export target for 1978-79 is 73,780 tonnes valued at Rs. 226 57 crores.

The progress in the field of fisheries has been due to a multi - pronged approach including introduction of mechanised craft, improvement of indigenous craft, mapping and charting operations, assistance to commercial exploration activities and a significant breakthrough in the technology yields levels attained at Fisheries Research Institutes.

In the field of inland fisheries, there is a central scheme of Fish Farmers Development Agencies for intensive fish culture for the utilization of tanks and ponds. At present these tanks and ponds are producing about 600 kg. of fish per hectare of water area. It will be finally raised to 1500 kg. per hectare in the first instance, with ultimate objective of producing about 3000 kg. per hectare.

Fifteen Fish Farmers Development Agencies have been established for training the fish farmers and to provide loans for inputs and also to mobilise institutional credits for reclamation of tanks. Many States have decided to allow intensive fish culture on long term lease to fish farmers selected by FFDA. During 1977-78 about Rs 1.9 crores were released as grants-in-aid to States for setting up 24 additional FFDA.

Pilot Project

Similarly, under the central scheme of pilot project on brackish water fisheries the Government has sanctioned setting up of 50 hectare brackish water forms in West Bengal, Andhra Pradesh, Kerala, Tamil Nadu and Orissa. The expenditure expected will be about Rs. 72 lakhs. In the field o f marine fisheries 1070 more mechanised fishing boats were introduced in 1977-78 making a total of about 14,400 Cent per cent assistance is also given to State Corporations to set up pilot projects in order to diversify fishing and encourage diversification of processing and marketing. Rs. 217 crores have been sanctioned to the State Fisheries Corporations of Tamil Nadu, Kerala and Karnataka to develop facilities for production of fish products.

In the coastal fishing villages the infrastructural facilities have been intensified to support the developmental programme. Special schemes for integrated development of these facilities in selected coastal villages have been launched. Under this scheme the facilities proposed to be provided include approach road, water supply, fish curing yards, service stations and workshops, insulated trucks, ice plants and community buildings. An outlay of Rs. 125 crores has been sanctioned by the Central Government for this purpose.

—KRISHI PATRIKA

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is a towing echo-sounder used for indicating position of the trawl, the fishes ahead of the trawl, the vertical mouth-opening of the trawl and the intensity of the fishes entering the trawl.

THE MARINE TIMES.

Questions & Answers

Chowgule & Co. (Private) Ltd., Goa.

Q: We would like to know the standard boat designs that you have developed.

A: Standard boat designs developed by CIFT are those of 25', 30', 32' 36', 40', 42' and 50' OAL. They are all of wooden construction suitable for engines of 15 BHP to 150 BHP.

Krishen C. Kukreja, Delhi.

Q: Please let me know the addresses of manufacturers of fishing nets in India and abroad and the availability of plants and machinery for their manufacture for use in India and for export purposes.

A: Address of some fish net manufacturers in India as well as firms dealing in net-making machinery are furnished below:

a) Manufacturers of fish net webbings:

1) The Fish Net Making Plant, Tungabhadra Board, Tungabhara Dam, *via* Hospet, Bellary District, Karnataka State.

2) The Gujarat Fishermen Central Cooperative Association Ltd., Ramol Road, Ahmedabad-8, Gujarat.

3) M/s. Sadhana Knitters, Sadhana Rayon House, Dadabhai Naoroji Road, Bombay-400 001.

4) The Nylon Net Factory, M/s. Kerala Fisheries Corporation Ltd., Ernakulam, Cochin-682011.

5) M/s. Madras Net Manufacturing Co., 60/4, Sir Thivagaraja Road, Madras-600 017

b) Manufacturers of fish net making machines:

1) M/s. Amita Toyohashi, Japan.

2) M/s. Kvoritsu Machinery Works Ltd., 6, Sakurado, Japan.

3) M/s. Amilean Net Machinery Manufacturing Co. Ltd., Tomida, ISC, Japan.

4) M/s. Portester Ltd., Peckloton Common, Leicesta, England.

R. Kalyanasundaram, Industrial Development Services, New Delhi.

Q: To what extent are traditional fishing net materials being replaced by man-made fibres such as nylon, HDPE and polypropylene?

A: Replacement of natural fibres by nylon and HDPE has been successfully done both in gill nets and trawl nets. In the former, operated by both country crafts and mechanised boats, the traditional cotton has been completely replaced by nylon. Nylon did not prove quite successful in the early stages for trawl nets as the twines manufactured did not possess the required qualities. Nylon twines suitable for trawl nets are now being manufactured. This material is also used on limited scales for mid-water trawl and knotless purse-seine nets. Trawls operated solely by mechanised vessels are now mostly fabricated out of HDPE This material is also used in certain portions of seines and stake nets, such as mounting ropes, lines and selvages in gill nets.

The future of polypropylene depends upon whether it will be made available as monofilament or multifilament yarn. In both ways it will definitely have a market. If made as multifilament twines, it will replace nylon, because it is equally suitable and cheap. It may find easy acceptance by fishermen due ro its resemblance to the currently popular nylon twines. As a monofilament, polypropylene will serve as a substitute for HDPE. However, its diameter will have to be adjusted to make it suitable for making twines of different specifications Probably, 0.15 to 0.25 mm. diameter may be suitable.

The introduction of man-made fibre nets, nylon, HDPE or polypropylene will neither displace the traditional net repairing skills nor the mending technology.

Q: What is the present fleet strength of trawlers?

A: There are at present about 14,000 mechanised fishing vessels in India, of which 90% go for trawling.

Q: What is the approximate weight of man-made fibre required initially for outfitting a trawler?

A: For equipping a trawler with a suitable trawl net, about 120 kg. of material is required in bigger trawlers and 35-80 kg. in small and medium vessels.

Q: What will be the replacement demand?

A: A commercial trawler should have at least three sets of gear to operate continuously throught the year.

M/s. M. S. S. Fisheries, Madras.

Q: We are interested in collecting information on floats used in fishing nets We request you to please reply to our following queries. 1. Types of floats used in nets for inland fishing. 2) Types of floats used in marine fishing. 3) Space interval followed in fixing floats in a) Gill nets, b) Trawl nets, c) Purse-seine nets, d) Other types of nets used in inland fishing. e) Other types of nets used in marine fishing. 4) Average number of floats used for 1 kg. of the following nets: a) Gill nets, b) Trawl nets, c) Purse-seine nets, d) Other types of nets used in inland fishing, e) Other types of nets used in marine fishing; 5) Estimated annual requirement of floats for nets used inland fishing. 6) Estimated annual requirement of floats for nets used in marine fishing. 7) Commercial details as follows: a) Addresses of firms manufacturing floats in India, b) Their production capacities, c) Availability of floats in India.

A: Available information on the various points raised by you is given below:

1. Airoplast, thermocole and plastic floats are used for inland fishing.

2. For marine fishing, airoplast, aluminium, glass and plastic floats are used. 3 & 4) Informafion regarding these two items cannot be furnished as it depends upon a number of factors such as type and size of floats used, depth of operation of the net, water current etc. 5 & 6) Directors of Fisheries of the respective States may be contacted There are 14,000 mechanised boats fishing along the Indian coast, besides inland waters as well as thousands of indigenous crafts.

7 a) *Glass floats* are manufactured by: 1) M/s Vazir Glass Works Ltd., J. B. Nagar, Andheri, Bombay-

400 059. 2) M/s. Ganga Glass Works Ltd., Balawati, N. Railway, (Dist. Bijnor)

Aluminium floats: M/s Jeevanlal (1929) Ltd., 127, Mint Street, P. B. No. 1389, Madras-600 001. 2) M/s India Aluminium Company Ltd., Industrial House, 50, Residency Road, Bangalore. 3) M/s Aluminium Manufacturing Company Ltd., Jessore Road, Dum Dum, Calcutta- 700 020.

Airoplast floats: 1) M/S Airoplast (P) Ltd., Steel Chambers, 5th Floor, 10, Cawasji Patel Street, Fort Bombay- 400 001.

Thermocole floats: 1) Inigrade Fishnets, 50, Deon Buildings, Connought Place New Delhi- 110001. 2) Beardsell and Company (P) Ltd., Harbour Road, P.B. No. 38, willingdon Island, Cochin- 682003.

Polythene floats: 1) Poly Enc. General Industries, 11 'A' Unit, Industrial Estate Guindy, Madras- 600 032. 2). Enco General Industries, 71, Canning Street, Calcutta.

(b) &(c) Please contact the manufactures direct

VIIIth I A S L I C Seminar

VIIIth National Seminar of the I A S L I C (Indian Association of Special Libraries and Information Centres) was held from 26 to 29 December, 1978 at the Indian Institute of Technology Madras. The Seminar dealt with the topics i) Standardization of Techniques and Proceedures for information handling ii) Library and Information Systems for Rural Development Shri P. Ravindran, T2-3 (Library), represented the CIFT.

Appointments

The following appointments have been made at CIFT during the month:

1. Mr. Bhashir Mohammedt Allerkhan as SS Grade I a Veraval Research Centre.

2. Mr. Namdev S Hiwale as SS Grade I at Bombay Research Centre.

I. C. A. R. GOLDEN JUBILEE YEAR
1929 — 1979

12 issues of "FISH TECHNOLOGY NEWSLETTER" to be released during the year 1979 will appear in a new format with extensive news coverage on "Lab to Land" programme of the Institute besides the usual C. I. F. T. activities and fish technology matters.

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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

Please contact:

Director,
C. I. F. T.,
Matsyapuri P. O.
Cochin - 682 029.

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The Second Sub-committee of Parliament on Official Language headed by Mr. Yogendra Sharma M. P. at CIFT

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O.
COCHIN – 682 029

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Foreword

C.F.T.R.I.

EDITORIAL COMMITTEE

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Abbreviation: Fishtech News

Fishtechnology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fishtechnology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvements in the contents and get-up of the Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

GOLDEN JUBILEE OF I. C. A. R.

The Indian Council of Agricultural Research is celebrating its Golden Jubilee in 1979. Programmes have been chalked out for the whole year. The ICAR as it is today is a very large organization. It keeps about 7000 scientists very busily engaged in research activities. All aspects of agriculture, animal husbandry and fisheries are taken care of by these scientists. There are at present 35 central research institutes, 22 agricultural universities and 52 all India coordinated research projects scattered all over the country working under this organization. Besides, 21 operational research projects and several Krishi Vigyan Kendras also operate successfully.

BIRTH OF ICAR

A Royal Commission on Agriculture was set up under the chairmanship of Lord Linlithgow in 1926 to study the problems of agriculture and rural economy in the country. It recommended the establishment of a centralised agency for coordinating and improving the research and educational activities in the fields of agriculture and animal husbandry. Based on this the Imperial Council of Agricultural Research came into being on July 16, 1929 as a registered society through a resolution of the Government of India in the Department of Education, Health and Lands. The name of the society was changed into Indian Council of Agricultural Research on June 10, 1947 by an executive order and registration done with the Registrar of societies in January 1976.

HISTORY

The history and growth of ICAR make very interesting reading. The Imperial Institute of Agriculture was started at Pusa in Bihar in 1905. This institute and its experimental farm were set up with a donation of $ 30,000 made by Mr. Henry Phipps, a philanthropist of Chicago, U S A. It was transferred to Delhi in 1935. This is the Indian Agricultural Research Institute of today. An Imperial Bacteriological Laboratory was opened in Pune (Maharashtra) in December 1889. It was shifted to Mukteshwar in U. P. in 1893. A branch of this laboratory was established at Izatnagar, also in U.P., in 1913. This is now called the Indian Veterinary Research Institute.

Similarly, an Imperial Institute of Animal Husbandry and Dairying was started at Bangalore, Karnataka, in 1923. This was renamed as the Imperial Dairy Research Institute in 1936 and Indian Dairy Research Institute in 1947. It was shifted to Karnal in 1955 as the National Dairy Research Institute. The present Institute of Agricultural Research Statistics made its modest beginning as a Statistical Section of ICAR in 1930 and separated as a full - fledged independent institute in 1959.

The Sugar Cane Breeding Institute was established at Coimbatore, Tamil Nadu, in 1912 and the Indian Lac Research Institute of the Indian Lac Association at Ranchi, Bihar, in 1925. The latter came under the ICAR in 1966. The Jute Agricultural Research Institute was established at

Dacca (at present in Bangladesh) in 1938. It was shifted to Chinsurah in 1948 and further to Barrackpur (both in West Bengal) in 1952. The Indian Central Cotton Committee started the Cotton Technological Research Laboratory at Bombay (Maharashtra) in 1924. Its administration was taken over by ICAR in 1966. The Jute Technological Research Laboratory was established at Calcutta (West Bengal) in 1938.

OTHER INSTITUTES

Besides the Institutes named above, several others were added on to the ICAR at different times. The fisheries institutes viz; (1) Central Institute of Fisheries Technology (established at Cochin in 1957), (2) Central Marine Fisheries Research Institute (established at Madras in 1947 and later on shifted to Mandapam and then to Cochin) and (3) Central Inland Fisheries Research Institute (established at Barrackpur in 1947), originally started by the Ministry of Food and Agriculture of the Government of India were transferred to ICAR on October 1, 1967.

CELEBRATION PROGRAMMES

The highlight of the Golden Jubilee celebrations is a massive LAB-TO-LAND programme. The idea is to effect a large scale transfer of technology with a view to developing the agriculture in the country and improving the economic well-being of the farm community. Details of the programmes were finalised at a Workshop at Hyderabad on January 3 - 5, which was inaugurated by the Prime Minister. Release of new crop varieties, techniques and products for field application and organization of operational research projects, demonstrations and training programmes for spreading new technology among small and marginal farmers and agricultural labour will be some of the important items on the programme. Throughout the country, 50,000 families will receive special attention and assistance for upgrading their economic conditions by improvements in farming systems based on crops alone, crop-livestock or crop-fish production. Agricultural Universities also will be involved in the implementation of the programmes beginning from June. Organization of an international symposium on strengthening linkages between agricultural research and development, from September 15 at New Delhi, release of new publications including 'A History of Indian Agriculture' by Dr. M S. Randhawa and a Souvenir on Agricultural Research and Education during the last fifty years, release of special postal stamps, production of films on farm productions and rural development, organization of extension fortnights and exhibitions etc will be some of the important items that will be taken up.

A national organizing committee under the chairmanship of Mr. Bhanu Pratap Singh has recommended that the first fortnight of September must be utilized by all ICAR institutes and Agricultural Universities for organizing Krishi Melas, lecture demonstrations, mobile exhibitions etc, which will spread the methods of science and technology to rural areas. "Gene sanctuaries" for preservation of species of agricultural, horticultural and medicinal plants under natural conditions and a national agricultural museum will be set up. The Indian Veterinary Research Institute, Bangalore, will start commercial production of vaccine against "foot and mouth" diseases of cattle. An operational manual called LAB-TO-LAND has been brought out. This contains proposals from all institutes under the Council aimed at the above objectives. Extension pamphlets are to be prepared in down-to-earth simple language, both in English and vernacular, and distributed for

INTERNATIONAL YEAR OF THE CHILD

The year 1979 is being observed as the International Year of the Child. The Indian Council of Agricultural Research has given guide lines to all the institutes under its control to observe the occasion in a befitting manner. Child welfare activities are to be boosted in all institutes. Special emphasis is to be laid on children of low paid employees. Nutrition gardens, health care facilities and educational and cultural amenities are the areas where major thrust has been proposed.

Increased production and consumption of nutritious leafy and other vegetables and fruits are to be encouraged. The institutes can set up nutrition gardens in their campuses for the purpose. Produce from the gardens must be sold to families of low income groups at subsidised rates. This step can easily prevent nutritional maladies like vitamin deficiencies and anaemia often found in pre-school children. The motto should be "Plant a tree for every child - Every child to take care of a tree - For better health and nutrition"

Health status cards showing date of birth, sex, birth order, height, weight, mid-arm circumference, nutritional status and immunisation details must be issued to every child. Immunisation, vitamin prophylaxis and dental care must be taken up. Baby shows, creches, health education and supplementary nutrition programmes and voluntary child care service centres must be organised.

Nursery schools, children's parks, playgrounds and recreation centres and other facilities like subsidised school uniforms must be provided. Each institute can form a committee under the chairmanship of its Director for organising these programmes. The committee must meet every month during the year to activate the programmes. The ICAR headquarters will consider grants of Rs. 5000/- to Rs. 10,000/- per institute depending upon the total number of staff. This must be utilized as a "core-fund" and further money raised by contributions from staff, donations from public, bringing

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use of farm families and village level workers. A task force has been set up for making economic evaluation of the impact of this programme on the participating farm families.

The ICAR has completed half a century of purposeful existence. The country can legitimately feel proud of its achievements. The history of ICAR is in reality a saga of the progress recorded in the fields of the country's agriculture, animal husbandry and fisheries

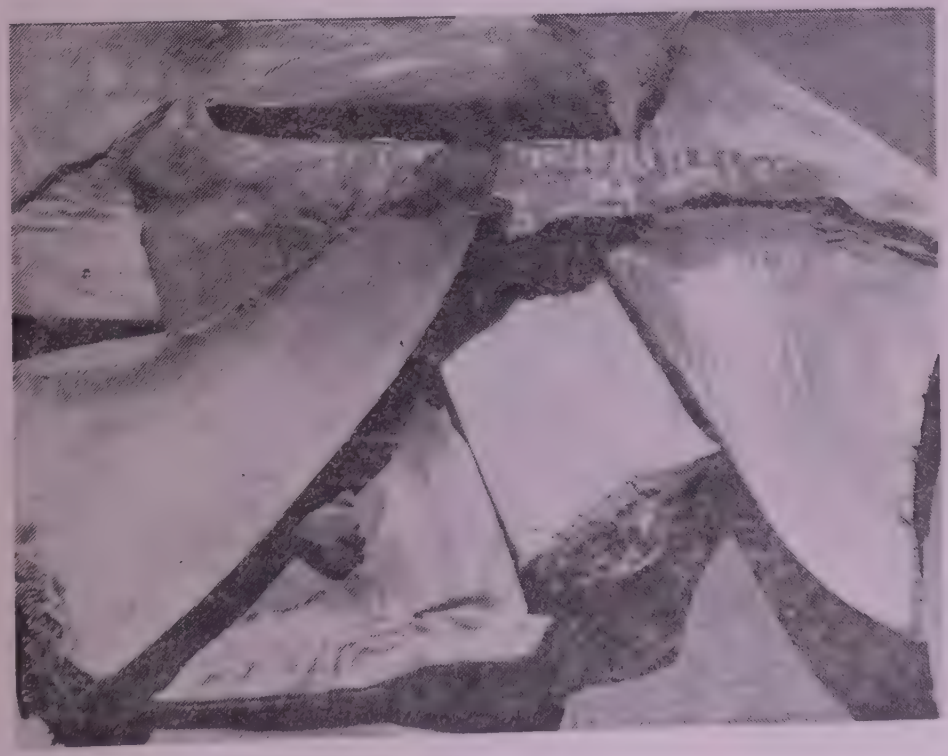
★★★

PROCESSING OF SHARK FINS AND EXTRACTION OF FIN RAYS

Dried shark fin is an important export commodity in India. The average annual exports of this material and fish maws together during the five year period 1974 - 78 were 309 tonnes valued at Rs 1.81 crores. Fins from several varieties of sharks are exported But the maximum price is obtained for those taken from 'Ranja' (*Rhynchobatus djiddensis*). Fins from 'Pisori' (*Scoliodon walbheemi*), 'Khada' (*Carcharinus melanopterus*) and 'Kanar' (*Zygaena malleus*) are also exported. Important markets for this commodity are Singapore, Hongkong and U K. Rays are separated from the fins in the importing countries. They are used for preparation of soup. Shark fin soup is held in very high esteem not only in these countries, but in the multi-star hotels in our country. The cost of the fins depends upon their size and colour. Dried white fins are sold at Rs 210/- to Rs 100/- and black fins at Rs 120/- to Rs 55/- per kg for lengths varying from 30 cm to 10 cm. The rays extracted from these fins fetch a minimum of Rs 1000/- per kg. in India. Methods worked out at Central Institute of Fisheries Technology for processing the fins and extraction of the rays are described below:

PROCESSING OF FINS

1. Cut the fins from large sharks of lengths 1·5m and above.
2. Remove the adhering flesh at the cut ends and wash thoroughly in fresh water.
3. Dust the fins with one-tenth their weight of salt. Rub comparatively more salt at the cut ends. It is preferable to dust the exposed ends with a little slaked lime. Set aside for 24 hours.



Dried shark fins

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out souvenirs and conducting benefit shows. The institute organising the best and most effective programmes has been offered a scroll by the Council at its Golden Jubilee celebrations.

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4. Rinse the fins in fresh water to remove any adhering salt. Dry them in the sun to a moisture level of 7-8%. Avoid contamination with sand and unwanted materials by using mats for drying.

5. Grade according to colour and size. Pack in moisture proof containers like polythene-lined gunny bags.

EXTRACTION OF RAYS

(Both freshly cut and dried fins can be used)

1. Soak the dried fins for 2-3 days in water acidified to pH 2.5 - 5 0 with acetic acid. Period of soaking may be extended to 5-6 days in the case of fins dried and stored for more thad an year.

2. Treat these softened fins or freshly cut ones with hot 10% acetic acid at 60°C for 90 to 120 minutes depending upon size of the fins.

3. Scrape off the skin and rinse with water.

4. Heat again in fresh 10% acetic acid for another 60 minutes.

5. Separate the rays from the flesh with fingers while washing with cold water.

6. Wash off the excess acetic acid with water.

7. Collect the rays and dry in the sun or preferably in an artificial dryer at 50-60°C to a moisture content of 5—8% (about 4 hours) .

8. Store the dried fins in polythene bags They keep in good condition for more than an year without any noticeable change.

Shark fin rays

REFRESHER COURSE ON FISH PLANT SANITATION

A week long refresher course on fish plant sanitation, quality control and inplant inspection was conducted at the Central Institute of Fisheries Technology (CIFT), Cochin, from January 18, 1979. Jointly sponsored by the Marine Products Export Development Authority(MPEDA) and CIFT, the course was attended by the technical personnel deputed by the fish processing industry in the state. The object of the programme was to impart advanced training to the participants on maintenance of hygienic conditions in fish processing plants and production of high quality processed fish fit for export as well as internal markets. Inaugurating the course the Director of MPEDA, Dr. T. A Mammen emphasized the need for further improving the quality of the fish products processed in the country. The Director of CIFT, Mr. G. K. Kuriyan, presided over the function. **

Cashewnut Shell Liquid as a Preservative for Wooden Fishing Boats

WHAT IS CNSL ?

'CNSL' is the short form of cashewnut shell liquid. It is a reddish brown thick liquid. It is expelled from the shell or pericarp of cashewnuts when they are fried for recovering the kernals for export. It is a pungent smelling, corrosive liquid which blisters human skin. Fishermen of Tamil Nadu, Kerala and Karnataka apply the crude liquid on the hulls of wooden country crafts as a protective against timber decay.

LIMITATIONS OF CNSL

Researches done at the Central Institute of Fisheries Technology have shown that CNSL prevents attack of marine bacteria and fungi and termites or white ants on wood. But it does not protect timbers immersed in sea water from marine wood borers and foulers. Obviously CNSL is not toxic to these organisms. Incorporation of toxic substances like dieldrin and copper salts with CNSL wards off attack by shipworms; but fouling organisms still proliferate.

CNSL RESIN

A resin can be prepared from deoarboxylated CNSL by condensation with phenol formaldehyde under controlled conditions. This resin is available under different trade names in the country. It is as good as the imported oleoresin, 'Dammar batu' and indigenous white, black and sal dammars for use as water and moisture-proof coating and as caulking compound for joinery works in wooden fishing boats.

ANTICORROSIVE PAINTS

This Institute has successfully formulated an anticorrosive paint using CNSL resin. It has the following composition :

CNSL resin	—	253 g
Phenolic resin	—	32 g
Linseed oil resin	—	32 g
Lead sulphate	—	210 g
Iron oxide	—	210 g
Aluminium power	—	158 g
Talc	—	105 g
Total	—	1000 g

The ingredients are heated together and mixed thoroughly. White spirit, turpentine and naphtha are added to adjust the thickness or viscosity. Naphthanates are added as dryers, besides small quantities of methyl ethyl ketoxime and diethyl phthalate. The formulation possesses excellent properties as regards scratch hardness, flexibility, adhesion and resistance to sea water, alkali, lubricating oil, salt spray and aerated sea water.

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(Contd. from page 10)

heavy to be fitted outboard directly above the drive system as in the case of outboard petrol engines. Hence the present system with the engine fitted inside the boat and the drive operating outside has been evolved and tested successfully.

WHAT ARE THE ADVANTAGES ?

As the device is very simple, it can be fitted on even small country crafts and row boats without modifying their designs. Since it is tiltable, the propeller can be lifted above the water level during starting of the engine. It is very difficult to start the engine with the propeller immeresed in water. The propeller is also more secure in a tilted up position while the boat is being launched into water for fishing operations, pulled ashore after the day s cruise and while mooring/ anchoring in shallow waters.

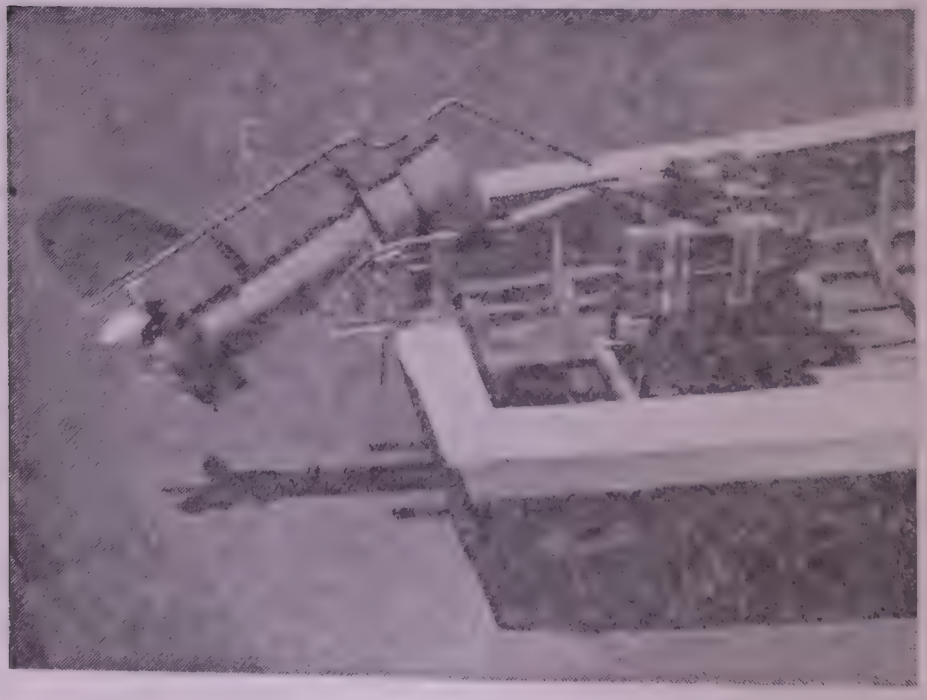
★

A BIG LEAP FORWARD IN MECHANISATION OF SMALL CRAFTS

INBOARD-OUTBOARD DRIVE-HOW IT WORKS

The Central Institute of Fisheries Technology has developed an inboard-outboard drive suitable for small crafts It consists of a vertical chain drive system fitted with a gun metal propeller at the bottom. The top horizontal drive shaft is specially designed, so that the drive unit along with the propeller can be tilted up/down/sideways The system is powered by a light weight diesel engine fitted inside the small boat.

The inboard-outboard system in operation



The inboard-outboard drive system in tilted up position.

The rudder is manually operated. The cost of fabrication of the system works out to approximately Rs 3000/.- exclusive of the engine.

WHY DEVELOPED

Mechanisation of small crafts in India is at present effected to a limited extent using *imported*, light weight, outboard petrol engines, especially on the Gujarat coast. However, the spiralling cost of petrol renders it very uneconomic. Diesel engines are too

(Contd. on page 9)

GLEANINGS FROM OTHER JOURNALS

Fish Genetics Bureau

The ICAR had envisaged the formation of a national bureau of fish genetic resources during the sixth plan period, said Dr. M. S. Swaminathan, Director General of ICAR in Madras, addressing a four-day seminar on the role of small scale fisheries and coastal aquaculture in integrated rural development organised by the Central Marine Fisheries Research Institute, Cochin. The bureau will ensure preservation of fish resources by scientific planning and according due importance to the ecological aspects of fisheries. In the matter of introduction of new technologies in small scale fisheries and aquaculture, emphasis must be given to demonstration of their economic viabilities. Such activities will contribute to 'aquaplosion' or a revolution in fisheries. Krishi Vigyan Kendras and Fisheries Colleges should aim at a harmonious blending of fish capture and culture. Dr. Swaminathan also appealed to the Tamil Nadu Government to develop Krusadai Island off Pamban as a marine park.

—THE HINDU.

New Record in Seafood Exports From India

Exports of processed seafoods from India in 1978 have broken all previous records -77,946 tonnes worth Rs 212.16 crores. This marks an increase of 19.98% in quantity and 18.04% in value over those of the previous year. As in recent years, frozen shrimp still topped the list of export items, contributing 65 73% by weight and 84.41% by value. Though quantity-wise fresh and frozen fish ranked second in magnitude (12 34%), value–wise (2.99%) it has been pushed to the third place by frozen froglegs which constituted 4.58% by weight (4th rank) and 3.97% by value. Dried fish ranked third in quantity (8 1%), but got displaced to the 5th rank in value (1.51%) by frozen lobster tails with only 0.87% by quantity against 2.15% by value and dried sharkfins and fish maws with 0 54% in quantity, but 1.63% in value, both of which earned higher quanta of foreign exchange. Frozen cuttlefish has gained importance in recent years, contributing 1.26% in quantity and 0 78% in value in the year under consideration.

Japan continued to be biggest market importing 43.5% in quantity and 66.7% in value. U. S. A. ranked second among our markets, taking in 22 9% quantity-wise and 18.2% value-wise. Though Sri Lanka ranked third quantity-wise (7.6%), it was pushed to the fourth place value-wise (1.3%) by France which took in 7.2% in quantity and 5 5% in value.

As in previous years, Cochin port accounted for the maximum expo t this year also, 40.61% by quantity and 40.02% by value. It was followed by Bombay exporting less than one-half of that by Cochin and

Bill for Fishing Trawler Operations

A draft legislation to regulate the operation of fishing trawlers in the country's 200 mile economic zone of the sea is being finalised. A model bill is being prepared by the agriculture ministry in consultation with the law ministry to ensure that some kind of statutory mechanism is available to regulate the operation of fishing vessels. The aim is to demarcate specific zones of the sea for different types of fishing vessels so as to eliminate competition between small country crafts and larger trawlers. Under the existing broad guide lines (which have no statutory backing) issued by the centre, mechanised boats and trawlers can operate only beyond a distance of 5 KM from the coast. Operation within this distance deprives the small non-mechanised fishing craft owners of their livelihood. The model bill also aims at registration of all fishing vessels operating on the coast line so as to provide basic data on the number of fishing vessels and their capacities, which would assist in future projections for manufacture/import of trawlers of various sizes.

—THE TIMES OF INDIA.

earning only one-third of the value Madras, Mangalore, Vizag, Calcutta, Veraval and Paradip followed in the order of magnitude of exports of marine products.

Source: MPEDA, Cochin

Improve Food Preservation Facilities

Inaugurating a two-day national seminar at Calcutta on small scale food industry for rural India organised by the Eastern Regional Branch of the Association of Food Scientists and Technologists (India), Mr T. N. Singh, Governor of West Bengal, urged scientists and technologists to take up research in food production in such a manner as would benefit both growers and distributors. Researchers should try to improve methods of preservation and processing of the produce These could be taken up in villages as well. Substantial portions of the produce were usually wasted for lack of preservation facilities.

Mr. Sudhin Kumar, the State Minister for food and supplies, asked the researchers to bear in mind the economic aspects of their projects. All efforts to improve production would fail unless markets are well regulated. Improvement in producing cereals, production of better quality paddy for converting into parboiled rice which is nutritionally suprior to raw rice and modernisation of hulling mills should receive immediate attention. Edible/ industrial oil should be recovered from rice bran to augment other vegetable oils.

—THE STATEMAN

Appointments

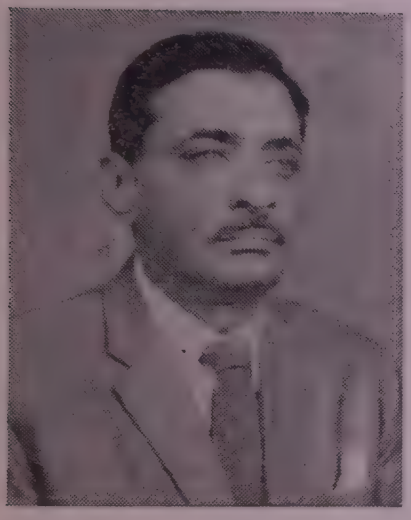
Mr. K. P. Antony joined as ARS probationer in the discipline of Fish Processing Technology in the grade S-1 at CIFT Headquarters.

Mrs. N. I. Mary joined as junior clerk at the Headquarters.

C.F.T.R.I.
MANGALORE.

Meet Our Scientists - 1

G. K. KURIYAN



Mr. George K. Kuriyan is Director, Central Institute of Fisheries Technology, Cochin since September 3, 1974 Prior to getting exalted to this onerous assignment, he served as Senior Fishery Scientist-cum –Head of Division (Craft & Gear) from 1971 to 1974 and as Senior Research Officer (Craft & Gear) from 1962 to 1971 at this Institute. As Assistant Director (Gear) from 1957 to 1961, he was solely concerned with the Institute's conception, confinement and infancy. The highly advanced status of mechanised fishing obtaining in the country today, of which she can legitimately feel proud, is in no small measure due to the untiring efforts of Mr. Kuriyan, who developed new designs of fishing crafts of various sizes suitable for our waters and new concepts of gear like long wing and bulged belly trawls for the purpose. These are now known as standard CIFT designs. Even before joining this Institute, he had been responsible for introducing mechanisation programme in the Department of Fisheries of the erstwhile composite Madras State.

Mr. Kuriyan has carried out research on almost all aspects of fishing gear technology and is perhaps the foremost leading scientist in the country today in this field. He has published over 75 research/technical papers and guided more than 90 research papers. He is connected with several academic bodies of the Universities of Calicut and Cochin, Central Institute of Fisheries Education, Bombay and Central Institute of Fisheries Nautical and Engineering Training, Cochin. He is an approved research guide for M. Sc. and Ph D. degrees of the Faculty of Marine Sciences of the University of Cochin.

Mr. Kuriyan is a member of several professional bodies, some of the more important of which are: (1) Founder Secretary and present President, Society of Fisheries Technologists (India), (2) Member, Indian Fisheries Association, Indian Society of Ichthyologists, Appellate Pannel of Export Inspection Agency, Advisory Board of the Department of Fisheries, Kerala, Fisheries Research Committees of Kerala and Tamil Nadu and Scientific Panel for Fisheries Research of Indian Council of Agricultural Research, (3) Chairman, Textile Materials for Fishing Purposes Sectional Committee (TDC-42), Marine Cargo Packaging Divisional Committee (MCPD-21) and IS Sectional Committee (dealing with fishing boats) of the

(continued on page 15)

CIFT Recreation Club Annual Day

The Annual Day of the CIFT Recreation Club was celebrated on January 26, 1979 at the Hindi Prachar Sabha Hall, Ernakulam. Mrs. Sarala Gopalan, Managing Director, Kerala Text Books and Publication Society, was the chief guest. The Director of CIFT, Mr G K Kuriyan, presided over the function. Prof. M. K. Sanu released the Club's manuscript magazine UPASANA. The chief guest distributed prizes to the winners in the various sports & games and cultural competitions conducted earlier by the club. The members of the club staged a Malayalam Drama 'Satyam Ivide Dhukhamanu'.

Mr. G. K. Kuriyan addressing the gathering

Participants in the Fancy Dress Competition

Prof: M. K. Sanu releases the club's magazine, UPASANA

100 metres race

(Contd. from page 13)

Indian Standards Institution. He was elected Fellow of the ISI as out-going Chairman of AFDC-27.

Born at Alleppey (Kerala) on May 24, 1923, Mr. Kuriyan was educated at Ernakulam and Madras and took his M. Sc. degree in Zooloy from St John's College, Agra, in 1945. He then joined the Department of Fisheries of the then composite Madras State as Research Assistant and held the post till 1950, during which period he passed several departmental tests. He was promoted as Assistant Director of Fisheries in 1951, which post he relinquished in 1957 to take up the assignment at this institute, then under the Ministry of Food and Agriculture of the Government of India. During the early period of his service, Mr. Kuriyan had occasion to work with and get trained under FAO Gear Engineer, Mr. G. S. Illugason, FAO Naval Architects, M/S Paul B. Zeiner and K. K. Rasmussen and FAO Gear Technologist, Dr. H. Miyamoto. He also had advanced training in Fishing Gear and Methods at Tokai Regional Fisheries Laboratory, Tokyo, Japan, under Colombo Plan in 1964.

Mr. Kuriyan took active part in several symposia connected with fisheries in the country and chaired the technical session on 'Shell Fish' at the International Conference on Handling, Processing and Marketing of Tropical Fish at the Tropical Products Institute, London, in July 1976. His absoring hobby is western music, especially of the devotional class.

LET'S TALK IT OVER

M/s. Climax Plastics, Ahmedabad.

Is it advisable to coat (sheath) with fibre glass and polyester resin inside as well of a wooden fishing boat, 33 ' long and 4.5 ' to 5' wide which has already been coated outside ?

CIFT: The inside of the wooden boat under reference need not be sheathed with fibre glass reinforced plastics for purposes of any protection. It may add substantially to the lobour and cost without the desired utility.

Shri. Ravi Mathews and others, M. S. Ramiah College of Engineering, Bangalore.

We are interested in the fabrication of a light-weight fishing boat of about 12' x 3' x 4' using ferrocement, plastic composites etc. as a part of our project work. We request your guidance and advice in this matter ?

CIFT: The design drawing of a 15' – 0" OAL row boat available with this institute is recommended for your project study. This boat can be used in lakes with a pair of oars. The drawings and off-sets may be studied for all specifications of the members. Seasoned and treated Mango wood (*Mangifera Indica*) or Haldu (*Adina condifolia*) may be used, and treatment with either 1 lb. / c.ft rate of copper - chrome - arsenic compound (Trade name ASCU) or 5 lb./c ft rate of creosote + fuel oil 50 : 50 done. This will be cheaper and longer lasting in inland waters. Assistance may be obtained from the Wood Preservation Officer, Forest Research Institute, Malleswaram, Bangalore.

Fibre - glass boats are light but costlier for rural areas whereas ferrocement is heavy. Corrosin resistant aluminium with revetting construction can also be tried.

M/s. Chamice & Cold Storage, Porbandar.

We would like to set up a small laboratory to test Fish meal for protein content, Sand, Silica, Ash and moisture content. The average samples to be analysed per day will work out to two to three. We shall be thankful if you please send us a list of equipments that are required for this kind of laboratory and also the cost of equipments and their availability.

CIFT: A list of equipments and Chemicals that are essentially required for a laboratory of the type proposed by you is furnished.

	Name of the item	Quantity required	Approximate cost Rs. Ps.
1.	Air oven electrically operated, adjustable between temp. 100 - 105°C.	1 No	3000 — 00
2.	(a) Microkjeldal digestion set with 500 ml. digestion flask, complete with stand, heaters, absorption arrangement for acid fumes.	12 units	2000 — 00
	(b) Microkjeldal distillation set		
3.	Soxhlet extraction apparatus	6 units	900 — 00
4.	250ml. round bottom flask with quick-fit neck to be connected with the soxhlet apparatus	6 Nos	300 — 00
5.	Muffle furnace adjustable between 400 - 1000°C	1 No	2500 — 00
6.	Conical flask, 250 ml	12 Nos	150 — 00
7.	Conical flask, 100 ml	6 Nos	50 — 00
8.	Standard volume flask, 100 ml	3 Nos	100 — 00
9.	Chemical balance, 200 gm capacity with weight box	1 No	2500 — 00
10.	Standard volume flask, 250 ml	3 Nos	200 — 00
11.	Pipette volumetric, 10 ml 20 ml 5 ml	3 Nos 3 Nos 3 Nos	90 — 00
12.	Microburette 10 ml " 5 ml	1 No 1 No	45 — 00 45 — 00
13.	Asbestos thimble 25 ml capacity	24 Nos	50 — 00
14.	Silica crucibles with lid	6 Nos	900 — 00
15.	Petroleum or cooking gas cylinder and burners (3 Nos)	1 No	700 — 00
16.	Tripod Stand	3 Nos	10 — 00
17.	Wire gauze	3 Nos	5 — 00
18.	Porcelain tiles	3 Nos	10 — 00
19.	Clay pipe triangle	12 Nos	12 — 00
20.	Funnel 3"	3 Nos	15 — 00
21.	Measuring cylinder, 250 ml	2 Nos	20 — 00
22.	Measuring cylinder, 100 ml	2 Nos	15 — 00

	Name of the item	Quantity required	Approximate cost Rs. Ps.
23.	Filter paper whatman No. 1 & 40	1 Pkt. each	100 — 00
24.	Towels	5 Nos	20 — 00
25.	Cotton (surgical)	500 gms	10 — 00
26.	Rubber tubing 10 mm	10 M	40 — 00
27.	Wash basin (porcelain) with fittings	1 No	400 — 00
28.	Distilled water unit	1 No	2000 — 00
CHEMICALS			
1.	Petroleum ether AR (40 - 60)	500 ml	20 — 00
2.	Silver nitrate AR	25 gms	250 — 00
3.	Nitric acid AR	500 ml	40 — 00
4.	Hydrochloric acid AR	500 ml	40 — 00
5.	Sulphuric acid AR	500 ml	50 — 00
6.	Ferric alum AR	500 gms	40 — 00
7.	Ammonium thiocyanate AR	500 gms	40 — 00
8.	Potassium dichromate AR	50 gms	20 — 00
FURNITURE			
1.	Work bench (wooden) with 2 cupboards	2 Nos	500 — 00
2.	Table (2M x 0.5m x 0.75m ht)	2 Nos	500 — 00
3.	Almirah	1 No	500 — 00
	Grand Total		Rs 18, 187 — 00
	Say :		Rs. 18,200/-

C.I.F.T.
MANDAPAM

AGRICULTURAL RESEARCH MANAGEMENT

"Scientists should have greater research responsibility and accountability so that there is better management of research programmes They should modernise project planning. execution, evaluation etc. adopting the well known principles in this regard". This was the objective of the two weeks' training course on Agricultural Research Management organised by the Central Staff College for Agriculture, Hyderabad, of the Indian Council of Agricultural Research for the benefit of the senior ICAR scientists of the S-3 and S-4 cadres during December 18 - 30, 1978.

Twentyfive scientists from 21 institutes participated in this programme and Mr. R. Balasubramanyan, Scientist S-3 was the candidate from the Central Institute of Fisheries Technology. The training course consisted of the following topics : 1) Organisation structure and dynamics, 2) Role of research managers, 3) Research and development management, 4) Authority and accountability, 5) Dynamics of research groups, 6) Personnel management and team building, 7) Criteria for project selection 8) Transfer of technology, 9) Technology forecasting, 10) Utilization of group resources, 11) Uncertainties in research and 12) Enabling organisation.

The course was organised in collaboration with the Administrative Staff College of India, Hyderabad. Basic knowledge of Management Sciences and generalisations from Indian experience were presented in the form of a series of lecture Ample time was also provid for group discussions. Oth pedagogical tools like ca studies, exercises and audi visual aids were employe The participants had enou opportunities to discuss man gement problems faced by the in their respective institutes.

The assessment of t training programme on conclusion brought out t usefulness of the training improving management of r search in ICAR institutes. T Staff College has plans organise 3 to 4 such tw week training courses for t benefit of senior scienti drawn one each from all t ICAR institutes.

THIS IS WHAT THEY HAVE TO SAY ABOUT CIFT

It is a very excellent opportunity to be at this Institute to see the tremendous progress it has achieved in the field of fisheries. I am very thankful for all facilities and excellent hospitality I received.

K. Fakhro, Bahrain.

This is a very well organised Institute. The programmes undertaken and reports produced are very good. I urge all those involved to keep up the good work.

N. Odero, Director of Fisheries, Kenya.

I visisted the labs, the Chemistry Dept, Processing unit and departments for the development of nets. It may have been very difficult for a layman like me to understand Chemistry, Pathology and other purely scientific subjects, but I was surely impressed by the overall working

G. N. Ratanpuri, Sri Nagar.

Registered with the Registrar of Newspapers of India Under No. 28 (AL) / 3 / 78 - NT

CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

Please contact:

Director,
C. I. F. T.,
Matsyapuri P. O.
Cochin - 682 029.

Edited and published by K. C. Purushothaman, Editor-Cum-Information Officer for the Director, Central Institute of Fisheries Technology, Matsyapuri P. O., Cochin — 682 029 and Printed by him at Parimala Printers, Mamangalam, Cochin — 682 025, Kerala.

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GOLDEN स्वर्ण जयन्ती JUBILEE
1929-1979
भाकृअप ICAR

Fish technology newsletter

Vol. 1 No. 8 February 1979

Mr. Sujan Singh, M. P., addresses the Scientists of CIFT (Report on page 4)

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O.
COCHIN – 682 029

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Foreword

CIFT TECHNOLOGICAL RESEARCH INSTITUTE
C.I.F.T.R.I.
MANDAPAM

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Abbreviation: Fishtech News

Fishtechnology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

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We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvements in the contents and get-up of the Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

SUJAN SINGH AT CIFT

Mr. Sujan Singh, Member of Parliament and Member of the Governing Body of the Indian Council of Agricultural Research, who was on a country-wide visit to assess the progress of work of ICAR institutes and Agricultural Universities, was at CIFT on 9th February 1979. He went round the various sections and laboratories of the Institute and held personal discussions with the individual scientists with a view to understanding their research activities and personal problems if any. He evinced keen interest in the multifaceted research problems being handled at the Institute and remarked "CIFT is doing research work of the highest degree and of great importance to the country as a whole and to the fishermen and fish processors and exporters in particular". He added that the marine fish industry is already providing direct and indirect employment to about ten million people and that this sector can bring foreign exchange worth several crores of rupees. The benefits of research and development efforts should go to the fishermen, small and marginal farmers and landless labour so that their socio - economic

Mr. Sujan Singh at the Processing Laboratory of the Institute

Mr. Sujan Singh keenly observes some of the electronic instruments developed by CIFT

Fishing with Trawl Nets in Hirakud Reservoir (Orissa)

The fishing gears normally employed for harvesting the vast fishery resources of the Indian reservoirs are the traditional gill nets, entangling nets, lines and shore-seines. Trawling has not so far been attempted for this purpose. The Burla Research Centre of the Central Institute of Fisheries Technology has successfully conducted experimental trawling in Hirakud reservoir.

Fishing was conducted with a 12.92 M four seam nylon trawl net (CIFT design) in the course of the river Mahanadi, up the reservoir from the investigational vessel FISHTECH V (9.1 M OAL) fitted with a 40.7HP diesel engine. On the whole the results were encouraging. The catch consisted of mainly *Mystus aor, M. seenghala, Roti cotio, R. chrysea and Notopterus chitala*.. Carps were conspicuously absent in the catch. The catch rate worked out to 19.4 kg/hr. Further work is in progress. Trawl net is the most extensively used fishing gear for the commercial exploitation of the marine fishery resources the world over. ★

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conditions would improve. Big business houses should plan their operations beyond 15 KM from the shore if they are really keen to help the fishing industry, since the exclusive economic zone extending upto 200 miles offers both challenges and opportunities which they can exploit for diversifying the fishing activities so that a wider area and a variety of fishes are exploited to increase the country's fish production. ★

Cathodic Protection Against Galvanic Corrosion in Fishing Boats

Sir Humphry Davy (1778-1829) is known to the world through the safety lamp he invented for the coal miners. Less well known is his work on Electro-chemistry by which he developed the idea of cathodic protection for ships' hulls. In the year 1824, the British Admirality asked Sir Davy to suggest some way of preventing corrosion in the copper sheathing used to protect the hulls of sailing ships. He suggested attaching of a lump of Zinc or Iron that would be sacrificially corroded. This we now know as 'cathodic protection', a widely used technique.

CIFT has now recommended marine quality aluminium-magnesium alloy or Fibreglass Reinforced Plastic (FRP) as alternative sheathing materials for the protection of wooden hulls of mechanised fishing boats in liue of imported copper.

Either electrolytic Zinc or Ternary aluminium alloy is now being extensively used as sacrificial anodes in all mechanised fishing boats and thereby galvanic corrosion is under control. ●

Second Parliamentary Sub-Committee on Official Language at Veraval

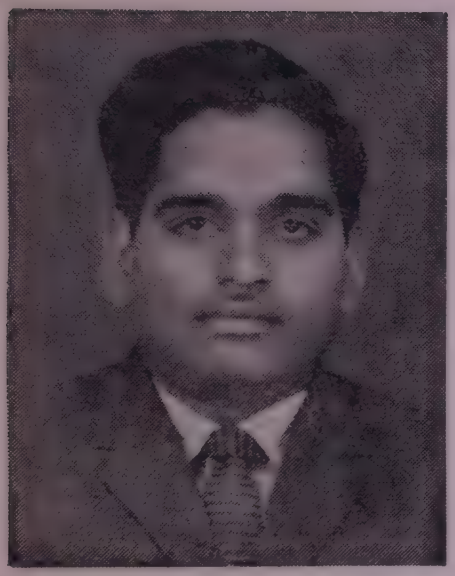
The second Parliamentary Sub-committee on official language implementation visited the research centres of CIFT and CMFRI at Veraval on February 8, 1979. Led by Mr. Yogendra Sharma, M. P., the sub-committee included M/s Nathuram Mirdha, G. H. Bhagat and Kameshwar Singh, M. Ps. as members. They were accompanied by M/s. K. K. Grover, Under Secretary and M. M L. Sharma, Divisional Superintendent, Railways, Bhavanagar. The committee held detailed discussions with the officers and scientists of both institutes and expressed their appreciation of the steps already taken by them in the matter of implementation of Hindi as official language, especially of the efforts done by CIFT in carrying out extension work in Hindi and Gujarati by way of pamphlets etc. Mr. Kameshwar Singh had a special word of appreciation for the pioneering work done at CIFT research centre in developing many new fishery products possessing great marketing potentialities. The Committee urged the scientists to put Hindi into more and more use in day-to-day office administration.

Appointments

Mr. Vasudev G. Kubal, SS Grade I at Goa Research Centre of CIFT has been promoted as Technician-2 (Engine Driver) on 12-2-1979 on *ad hoc* basis.

Meet Our Scientists - 2

Dr. C. C. PANDURANGA RAO



Dr. C C. Panduranga Rao is Scientist S-3 (Senior Bacteriologist) holding charge of the Kakinada Research Centre of Central Institute of Fisheries Technology. Born on 11th February 1933, at Bhimavaram, West Godavari District, Andhra Pradesh, he passed the Intermediate Examination in Arts & Science of the Andhra University in First Class with distinction in Telugu, Mathematics, Physics and Chemistry. He took the B V Sc. degree from Madras University in 1954 and worked as Veterinary Assistant Surgeon / Extension Officer (A. H.) in Andhra State service before joining the first batch for M. V. Sc. at Indian Veterinary Research Institute, Izatnagar / Mukteshwar, U. P. in 1958. After obtaining the Master's Degree, he joined the I. V. R. I. as Assistant Bacteriologist and carried out research work on different aspects of Veterinary and Food Bacteriology in addition to postgraduate teaching in Bacteriology and Immunology.

Mr. Rao underwent training in Epidemiology and Control of Communicable Diseases in man at the National Institute of Communicable Diseases, New Delhi in 1969-70 and proceeded to the United States of America for specialised training in Veterinary Public Health with special reference to Food Hygiene under a W. H. O. Travelling Fellowship. On return, he joined the teaching staff of the Veterinary Public Health Unit of I. V. R. I. at the All India Institute of Hygiene and Public Health, Calcutta. In 1972 he was promoted as Bacteriologist in the Veterinary Public Health Division of I. V. R. I., in which capacity he organised a laboratory for researches on milk and milk products and conducted comprehensive studies on enterotoxigenic staphylococci in milk, meat, bakery products and human beings. He took his Ph D. degree in 1972 and joined the present assignment in July 1975. He is presently engaged in investigations on microbial and chemical health hazards in different types of seafoods

AMBERGRIS

WHAT IS AMBERGRIS ?

Ambergris is a metabolic product i. e. a product of the chemical routine of the living body of sperm whales. It is a secretion formed in the intestines of these animals. It is perhaps produced by the difficult digestion of squid, cuttlefish and octopus. Occasional presence of squid snouts in ambergris and the odour of ambergris found in octopus lend support to this view. It is also thought that consumption of octopus plays a very important part in the formation of ambergris. When once the substance is excreted by the animal, it acquires a greyish transparent colour in contact with sea water and air. The product is found washed ashore along the coasts of Arabia and Lithuania.

PROPERTIES AND USES

Its colour is generally dirty white to blackish brown. The best quality ambergris is called "gray amber". It is highly soluble in rectified spirit. It is a rare ingredient of perfumes. In some regions it is used in jewelry. In some Arab and eastern countries, powdered ambergris is added to tea, coffee and other beverages to give a special flavour. The actual perfume bodies in natural ambergris amount to only 1% of the total mass. The remaining bulk of the products does not contribute to the perfume. The value of ambergris in perfumes is due to its properties of enhancing the aroma or scent and as a fixative. Autoxidation promotes the development of fragrance in tinctures of ambergris. This is accomplished by frequent shaking over a long period of time.

COMPOSITION

The main constituent of ambergris is ambrein. It occurs to the extent of 25 to 45% in the material. It is a tricyclic triterpine alcohol, crystalline and practically odourless. It is supposed to be the parent substance of the aromatic principle (sweet smelling compounds) in ambergris. Two key intermediates have been isolated from this. They are gamma dihydro-ionone (responsible for the odour) and ambreinolide which gives fixative properties to perfumes. Patent for this process has been taken by a Swiss firm. Holding and enhancing other odour components of a perfume blend are called fixative properties. A new product "Ambropur" has been prepared synthetically which possesses the natural note of gray amber. One firm has also investigated the property of ambergris as a sex-stimulant.

A SIGNIFICANT FIND OF AMBERGRIS

The National Institute of Oceanography of U. K made a note-worthy find of a boulder of ambergris weighing 420 kg from inside a sperm whale they caught in 1953. Six samples were taken from different locations from the boulder and examined in detail. They showed a hard waxy consistency. They had a superficial white coating below which was found typical brown and yellow coloured medium grade ambergris. All samples contained minute fragments of cuttle fish beaks. Ambrein and epicoprostanol, the main constituents of ambergris, were

GLEANINGS FROM OTHER JOURNALS

Japan's Fishing Success Through Fish Finders

Japanese studies on fish finding techinques progressed rapidly in the sixties. More than 30, 000 Japanese fishing boats had such devices installed on board during that period. About 50 types of fish finders are available in the market. Several of them are designed for use in particular fishing methods. Frequencies used range from 10 kc to 400 kc depending on the object under detection; but in some cases a combination of low and high frequencies is used. Maximum range is more than 5000 M for sea bottom sounding and more than 600 M for individual fish such as tuna. Objects of only several mm size can be detected.

In the case of purse seine fishing for sardines and mackerel, the equipment is installed on a "fish finding boat" which moves about continuously to detect schools of fish. When one is found, the fishing boat is informed by radio-phone. The majority of trawlers are equipped with twin-frequency fish finders in order to discriminate between fish and sea bottom and determine the kind of fish observed. New types of fish finders can detect fish schools at depths of more than 1000 M and those swimming 30 cm above sea bed at 100 M depth.

The net sonde (with or without cables) is an instrument for determining the position of the net with respect to the bottom and showing the fish entering the net. Range of operation of net sonde with cable is 200 - 300 M depth and 1000 M horizontal distance. Cable-less ones are composed of receiving devices viz; ultrasonic receiving transducer and indictator, the former being towed from the stern of the boat. A recent development of this equipment can also record temperature of water where the net is fishing, presence of fish in the net or fish schools at its mouth.

Interpretation of the various echo-chart data gathered from tuna fishing grounds has shown that tuna keep on changing their swimming depths daily over a range of 50 - 300 M depending upon the time of the day and under - water light penetration Horizontal sonar is applied mainly to purse seine fishing for sardine and tuna, besides determination of fish species, school density and swimming speed. Experiments are also under way to drive away or lure fish schools by means of sound techniques because the sense of hearing in fish is sensitive to acoustical vibration.

Source: World Fishery Abstracts

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present in larger concentrations in the middle along the axis than at the periphery. In a similar manner, the narrower end contained more of these compounds than the middle protions of the boulder. Spectrophotometric examination of the specimen showed the presence of Magnesium and Calcium besides small amounts of Sodium, Manganese Copper, Iron and Silicon with traces of Zinc, Aluminium and Nickel.

Source: World Fishery Abstracts

FIBREGLASS CATAMARAN

The Irwin Boat yard, Visakhapatnam, has constructed a fibreglass catamaran weighing hardly 300 kg, which is only half the weight of the traditional catamaran and hence can be easily lifted by four fishermen. The use of rigid polyurethane foam imparts a high degree of buoyancy and safety to the boat. It has got provision to carry 800 to 1000 kg of catch in its insulated holds with adequate space for storing ice and fishing gear.

According to the designer, the craft can be rowed, paddled sailed or powered by any outboard motor or light-weight inboard diesel engine. It has been designed to take up the triangular sail commonly used on the east coast. The catamaran developed 12 knots/hr with a 20 HP outboard motor. Its life expectancy is claimed to exceeed 20 years.

The catamaran costs about Rs. 11,500/-which can be brought down to Rs 10,000/- if the heavy excise duty on the main ingredients is reduced.

A traditional wooden catamaran costs anywhere about Rs6,000/-; but has only a lower life of about 7 years particularly due to the attack of the parasite, *Teredo*, present on the east coast.

The HINDU

●

Sea Barrier

In the San Francisco Bay area a unique sea barrier has been constructed out of 2000 old tyres. The tyres are bolted together to form a protection to businesses and a mote against damage from high waves. The tyres are said to reduce 3-metre (10 ft) waves to a mere ripple. The HINDU

Aginex - 79

A general view of the joint pavileon put up by Central Institute of Fisheries Technology and Central Marine Fisheries Research Institute in the All India Agricultural and Educational Exhibition at the Marine Grounds, Ernakulam. The Exhibition was organised by the Rotary Club of Cochin and was inaugurated on February 1, 1979.

LET'S TALK IT OVER

M/s. Kermeen Foods (P) Ltd., Bombay

Kindly let us know the process developed at your Institute for utilization of prawn head and shell waste.

CIFT: This Institute has worked out an integrated process for production of protein concentrate, glucosamine hydrochloride and chitosan from prawn head and shell wastes. It consists in extracting the waste with dilute alkali which solubilises all the proteinous matter. The alkaline protein extract is neutralised and concentrated to a pasty consistency. This product can be used as bread-spread or for flavouring other culinary preparations.

The residue is treated with an organic sol ent which extracts the glucosamine, a valuable pharmaceutical compound. The chitinous material left is deacetylated with strong alkali to yield chitosan which finds varied industrial applications like textile-sizing, paper-glazing, wine-clarification water-purification and as a general industrial flocculant. (please also see Fishtech. News Vol. 1, No. 6, pp 5 & 7).

Dr. J. N. Baruah, Deputy Director, Regional Research Laboratory, Jorhat, Assam.

It is proposed to prepare a status report on the menace and management of water hyacinth. This will include the extent of menace, present status of management effort, seasonal variations of growth and economic applications of the plant. I shall be thankful to you for any data which may be available with you regarding this weed.

CIFT: The Central Inland Fisheries Research Institute, Barrackpur, Calcutta, has conducted some studies on noxious aquatic weeds. However, the CIFT has developed a weeding machine. It is now being manufactured as per order under a licence granted by the National Research Development Corporation of India, New Delhi, by a private firm viz; M/s. Sreevardhaman Engineering Industries, Kolhapur, Maharashtra.

Shri. K. Raha, Joint Director of Fisheries, Tripura, Agartala.

We are in urgent need of two fibreglass speed boats for fishing in our reservoirs. We will be very much obliged to you for a list of manufacturers of such boats.

CIFT: The following parties may please be contacted for the purpose: 1) M/s Gladstone Lyall & Co., Ltd., 4, Fairlie Place, Calcutta 2) M/s Tufflite Plastics, Avanashi Road, Peelamedu, P. B. No. 1625, Coimbatore - 641 004. 3) M/s. Praga Industries (P) Ltd., P. B. No. 1620, Peelamedu P.O., Coimbatore-641004, 4) M/s. Aquamarine Pvt Ltd., B-5, Ambattur Industrial Estate, Madras - 600 058. 5) M/s. Gardon Reach Workshop, P. B. No. 15, 21, Fairlie Place, Calcutta - 1. 6) M/s. Afco Ltd., P. B. No. 1007, 9, Wallace Street, Fort, Bombay 1. BR.

C.I.F.T.R.I.
MANGALORE

WHAT THEY HAVE SAY ABOUT CIFT

Yet another Institute conrtibuting its might, and admirably to the building of new India.

Mr. H. P. Singh, New Delhi

Very good management and inspiring

Mr. R. S. Acharya, Patna

This has been a rich experience to see the excellent facilities and the extensive fisheries research programmes Your accomplishments should be important India's food problem and in export improvement

Mr. D. W. Thorne, USA

◆

M/s. Leo Industries, Port Blair, U. T. of Andaman & Nicobar Islands

What are the equipments required for setting up a shark liver oil extraction plant ? We also intend to install a fish meal plant making use of the wastes from the above. We request you to supply us with details of a dryer unit for this which can be installed in a room 20' x 15' x 10'.

CIFT: Equipments required for shark liver oil extraction are: 1) Boiler, 2) Washing tank, 3) Stainless steel cooker, 4) Hand/hydraulic press and 5) Centrifuge. In order to suggest a suitable scheme, information about the capcity and financial outlay in this project is needed. We can supply you with the design details of a fish meal dryer of one-half ton capacity which can also be used to produce fish meal from miscellaneous fishes utilizing the equipments of the shark liver oil plant.

M/s. Ramsons Sea Foods, Veraval, Gujarat.

We are interested in utilising solar energy for drying dhoma fish at the rate of ten tonnes per day. Can yau help us in installing such a system ?

CIFT: This Institute has developed a solar dryer which is suitable only for small scale operation. However, a solar drying yard has already been designed which is an improved version of the conventional sun-drying yard and can give quality products in shorter time. Kindly furnish all details such as availability of open space, water supply, building etc. at the proposed site. This will enable us to give a suitable design as well as technical help in the lay-out and preparation of fish for drying.

Assistant Director, Inland Fisheries Development Station, Ukai, Gujarat.

This Station is interested in undertaking canning of inland fishes on experimental basis. Wherefrom can we get a hand-operated seaming machine for the purpose?

CIFT: Hand operated can seaming machines suitable for canning fish are manufactured by M/s. Matal Box Co. of India Ltd., P B. No. 1169, 19, Elaiyamudali Street, Tondiarpet, Madras- 600081.

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I, K. C. Purushothaman, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/—
(K. C. PURUSHOTHAMAN)
Signature of Publisher

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GOLDEN स्वर्ण जयन्ती JUBILEE
1929-1979

Fish technology newsletter

Vol. 1 No. 9 March 1979

Dr. M. S. Swaminathan, Director General, ICAR, being presented with a momento by the CIFT Recreation Club on the eve of his laying down office to assume charge his new assignment as Principal Secretary, Ministry of Agriculture and Irrigation.

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN – 682 029

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Foreword

EDITORIAL COMMITTEE

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Member

Dr. P. N. Kaul
Member

Shri. K. Bhaskaran
Photographer

Shri. G. Mohanan — Artist

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Editorial Committee.

CIFTONE - The Ideal Health Drink Using Fish Protein

The Central Institute of Fisheries Technology which has blazed several new trails in the horizon of fishery technological research, has now perfected a new formula for the preparation of an ideal nutritious beverage based on fish protein hydrolysates. 'CIFTONE' is the name given to this new formulation. Several such products are already on the market in granular or powder form, flavoured with coca and otherwise, based on vegetable protein hydrolysate or milk proteins and enriched with carbohydrates like malt and sugar, vegetable fat, vitamins and minerals, in some cases. The products are generally dissolved in hot milk with additional sugar to taste and served. They are very popular and are very useful in combating protein mal-nutrition in children and the under-nourished in general and in recuperation of the invalids in particular.

Fishes like mackerel, jew fish, sole, silver bellies, prawn, ribbon fish, *Saurida* sp. etc have been successfully employed by the institute for preparing this product. The method worked out is as follows:

1. Wash the fresh fish thoroughly in potable water.
2. Mince the whole fish in a meat mincer.
3. Add approximately an equal quantity of water to the minced flesh and boil for half an hour.
4. Cool to 45-50° C and adjust the pH of the slurry to 5-7 using hydrochloric acid.
5. Take papain, the enzyme which brings about the hydrolysis or breaking down of the proteins, at the rate of 200 g per 100 kg of the fish slurry and suspend it in a small quantity of water.
6. Add the enzyme suspension to the fish slurry, mix thoroughly and maintain at 45 - 50°C for 4 hours.
7. Boil the reaction mixture for a few minutes to inactivate any excess enzyme.
8. Cool and filter. Neutralise the filtrate with dilute sodium hydroxide first and with baking soda towards the last stage.
9. To the neutralised hydrolysate, add the following ingredients for every 10 kg of fresh fish utilised for hydrolysis. (Yield of hydrolysate: 10% approx.)

Sugar	—	1 kg
Malt extract	—	250 g
Vegetable fat	—	125 g
Cocoa powder	—	125 g

(Total weight of the final product obtained in such a case will be 2.5 kg).

10. Mix thoroughly and evaporate in a steam jacketed kettle under slight positive steam pressure to a pasty consistency.
11. Dry the paste in a vacuum dryer. Alternatively, if a spray dryer is available, the step of evaporation can be avoided and the mixture from stage (10) can be straightaway spray-dried).
12. Powder the dried product and pack in air-tight bottles or in laminated polythene bags. The product is hygroscopic ie; absorbs moisture when exposed to air.

The final product was of uniform appearance and quality irrespective of the type of fish used. Drink prepared by dissolving this product in hot milk at the rate of one table spoon per cup with added sugar to taste was very wholesome and appealing to the consumers.

◆

PRESERVATION OF FISH IN REFRIGERATED SEA WATER

The oldest, simplest, most versatile and universally employed preservative for fresh fish is crushed ice. The scientific principle underlying this is that the heat required for melting of ice (latent heat) is absorbed from the fish which it surrounds and hence their temperature is slowly lowered until it equilibrates with that of the coolant, viz; zero degree centigrade. Part of the bacterial flora that is originally present on the fish gets destroyed by the low temperature due to their sensitivity to cold, while the rest of the bacteria as well as the degradative enzymes are inactivated, with the surface flora even getting washed away by the melting ice. Deteriorative biochemical changes like oxidation are also retarded under these conditions.

PRINCIPLE

Substitution of crushed ice with refrigerated sea water for fresh fish preservation is an innovation of very recent origin. According to a French patent of 1920, sea water cooled with ice blocks was used for preservation of fish. Since in this method the sea water gets diluted with the ice melt water, mechanical refrigeration was subsequently employed for cooling. Fish to be preserved are dumped into natural or artificial sea water in an insulated tank. A second smaller adjacent insulated tank chills the sea water by means of a refrigeration system employing Freon 12 as refrigerant. One pump draws the sea water from above the fish in the storage tank into the chilling tank, while another one injects the chilled sea water from the chilling tank from the bottom of the storage tank. Thus a continuous circulation of chilled sea water through the fish is maintained. The temperature of the system is thermostatically controlled at 0 to -1°C.

ADVANTAGES

The intimate contact of the cooling medium with the fish ensures efficient and rapid cooling. Fish do not get pressed or bruised, whatever be the depths to which they are filled in the tank, because of their buoyancy in the cooling medium. Better and uniform temperature can be maintained with the mechanical contrivance employed. With RSW system installed in a fishing vessel, she can continue operation in the open sea for indefinite periods without being limited by the quantity of ice which she has to carry otherwise for preservation of the catch, besides saving considerable labour and ice storage space on board.

EXPERIMENTS AT CIFT

The Central Institute of Fisheries Technology has

Dr. M. S. Swaminathan, Director General, ICAR, keenly observes mackerel preserved in the RSW unit installed at the CIFT Laboratory

installed an RSW unit in its laboratory and has been carrying out experimental preservation of fish for quite some time.

Oil sardine, mackerel and seer are some of the more important varieties of fish studied in this connection. The first one did not show any appreciable difference in quality during the first two days of storage between ice and RSW. However, beyond this period RSW- stored sardines were somewhat inferior to ice-stored ones, because the salt in the sea water accelerates development of rancidity in the highly fatty fish. The flesh surrounding the vertebral column also showed a brownish discolouration after two days of storage in RSW. Bursting of the bellies was however lower than when held in ice. The maximum storage life of this fish in both RSW and ice may be reckoned as 2 to 4 days.

Mackerel, having a lower fat content than sardines, kept slightly better in RSW during the initial stages (2 days) than in ice. Beyond this period, the fish held in both the preservatives behaved more or less in a comparable manner. In this case also, a slight discolouration of the flesh surrounding the backbone was observed after two days of storage in RSW. Storage life of this fish in both the media was 4 to 6 days.

As far as larger size fish like seer are concerned, RSW was definitely a superior preservative than crushed ice. The former could preserve it in acceptable condition for 12 to 14 days, compared to only 6 to 9 days by the latter. Hence, it may safely be concluded that while both RSW and ice are almost comparably effective in preserving small and medium size fishes, the former definitely scores much higher in the case of larger size fishes.

GILL NETS FOR FISHING

Gill netting is a very popular method of fishing practised all over the world including our country. The fishing operation is very simple, can be easily taken up by ordinary fishermen and is ideally suited for entrepreneurs with meagre and medium means, because unlike trawling and purse-seining, investments on craft and gear are not capital intensive. The return on investments also is favourable on commercial basis.

Taking these aspects into consideration, CIFT has developed designs of gill nets suitable for exploitation of fisheries which are vulnerable to this method of fishing. The design details together with information on the sources of supply of the materials required for their fabrication are furnished in this note for the benefit of prospective entrepreneurs in the field.

TECHNICAL DETAILS OF THE MAIN WEBBING

(Material recommended: Nylon)

Fishery to be exploited	Specification of twine	Mesh size: mm	Approximate number of meshes/kg	Dimensions of one unit in meshes	Quantity of material for 1 unit: kg
Sardines	210/1/2	35	2,00,000	1000x150	0.75
Mackerel	210/1/2	55	1,25,000	1000x250	2.00
Prawns	210/1/2	55	1,25,000	1850x130	1.75
Spotted seer	210/9/3	105	5,240	500x110	10.50
Seer	210/9/3	150	3,590	334x 78	7.25
Hilsa	210/2/3	100	25,400	720x 72	2.00
Pomfret	210/3/3	140	13,000	650x 40	2 05
-do-	210/2/3	125	15,300	5 5x55	1.50
Lobster	210/6/3	150	5,000	250x15	0.72
Inland fishes	210/2/3	150	15,000	670x45	2.00

ACCESSORIES:

(1) Head and foot ropes: Polyethylene monofilament twisted/ braided rope, 4 mm diameter.

(2) Floats: Airoplast floats, cylindrical shape, size 50x20 and 60x30

(3) Sinkers; Lead spindle shape, bore 16 mm, weight 50 g OR 3 mm M S rod ring type, weight 200 g

Note. 1) Number of floats and sinkers to be adjusted to suit local fishing conditions.

2) Number of units of nets to be operated from each boat depends on the size of the boat.

Source of availability:

MAIN WEBBING: As twines:

1 M/s Garware Nylons, Express Towers; 5th Floor (East Wing), Nariman Point, Bombay-400021

2. M/s. J. K. Synthetics, Kamla Tower, Kanpur.

3. M/s. Nirlon Synthetic Fibres & Chemicals, 115/ 1 B, Maubray's Road, Madras - 600018.

4. M/s National Rayon Corporation, Post Mohone, Thana Dist. Pin: 421002, Maharashtra.

5. M/s Sriram, Fibres, 17/3B Nungambakkam High Road, Madras - 600034

AS WEBBINGS:

1. Kerala Fisheries Corporation, Ernakulam, Cochin-682011.

2. Fish Net Making Plant, Thungabhadra Board, *Via* Hospet, Karnataka.

3. Tamilnadu Agro Industries Corporation Ltd., Agro House, Industrial Estate, Guindy, Madras- 600002.

4. Gujarat Fishermen Central Co-operative Association, Ahmedabad - 380008

ACCESSORIES: Ropes

1. M/s Garware Wall Rope, Chowapthy Chambers, Bombay - 400007.
2. M/s Ganges Ropes., Ltd., Sibpur, Howrah-700002,
3. M/s King Fisher Twines & Ropes, 2 Ajanta Apartments Shaheed Bhagat Singh Road, Colaba Bus Station, Bombay- 400005.
4. M/s Venus Industries, Gala No. 102, 3rd Floor, Municipal Industrial Estate, Dr, E. Moses Road, Bombay- 400018.
5. M/s Dhanvyavastha (P) Ltd, Todi Estate, Lower Parel, Bombay- 400013.
6. M/s. Avon Plastic Corporation, Modinagar, HAPUR, U. P.
7. M/s Sonaco Thread Mills; 55, Bazaar Road Building, Khabhag, Belgaum, Karnataka.

FLOATS

M/s Airoplat (P) Ltd., Sheel Chambers, 5th Floor Cawasji Patel Street, Fort Bombay- 400001

SINKERS

Available with dealers in fishing requisites and hardware merchants.

PROPERTIES

Size		Breaking Strength : Kg.	Runnage [m/kg]
Nylon twine	210/1/2	2.5	17,200
	210/2/3	7.5	6,050
	210/3/3	11.5	4,250
	210/6/3	22.5	1,900
	210/9/3	35 0	1,250
	210/12/3	45.0	1,000
Polyehtylene rope	4 mm	200·0	110·

★

CATHODIC PROTECTION OF FISHING BOATS

Corrosion of metallic parts such as steel hulls, sheathing on wooden boats, propellor, propellor shaft etc in fishing vessels is a serious problem which results in expensive repairs in the absence of proper preventive measures, Corrosion can be prevented by using protective anticorrosive paint and by installing suitable anodes especially below water line. However, painting alone cannot prevent corrosion owing to discontuities in the layer resulting in pitting corrosion here and there. It is thus essential to supplement painting by fixing anodes of either zinc or ternary aluminium alloy at selected locations on the hull.

Highly pure zinc or ternary aluminium alloy has to be used for anodes to obtain the desired degree of corrosion control. These anodes are less noble compared to aluminium, copper, bronze etc (cathodes) and get corroded in preference to the cathode which is thereby protected. The following precautions have to be strictly observed while fixing anodes to the hull: (1) Fix the anodes to the sheet directly with galvanised iron or stainless steel screws Remove the paint from the area where anodes are to be fixed so as to ensure direct electrical contact. (2) Use more anodes at the stern area and on the rudder. (3) Fix the anodes 40 cm below the water line. (4) Do not paint the anode. (5) Cleam the anodes periodically and replace the worn out ones. (6) Take care to prevent over-protection as this has the opposite effect.

An anode of 100 sq cm area and weighing 500 g in the case of aluminium and 1.3 kg in the case of zinc can protect 10 sq m area of the hull. Ternary aluminium alloy anodes are available with: (1) M/s Hindustan & Overseas Cathodic Protection Services, Amarikat Building, Kavalam, Alleppey, Kerala. (2) M/s Sputnik Metal Products, Bethel, Karaikudi- 2, Tamil Nadu. (3) M/s Sriram Enterprises, Industrial Estate, Karaikudi - 5, Tamil Nadu.

Pure zinc is being manufactured in India by tha following factories: (1) M/s Cominco Binani Zinc Ltd., Binanipuram, Edayar, Alwaye, Kerala State. (2) M/s Hindustan Zine Ltd., Zinc Smelter, Visakhapatnam, AndhraPradesh.

LAB - TO - LAND PROGRAMME OF CIFT - 1

One of the highlights of the Golden Jubilee Celebrations of the Indian Council of Agricultural Research being observed this year is a massive LAB-TO-LAND Programme, to which the Central Institute of Fisheries Technology is contributing its mite. From this issue of Fishtechnology Newsletter onwards, we are publishing brief accounts of the activities of CIFT aimed at the above objective.

Training in Fish Plant Sanitation

Export of seafoods is playing a vital role in the economy of India, its contribution to the foreign exchange earnings of the country marking an all time high of Rs. 212 crores in 1978 Needless to say, the lion's share of this earning goes to the lower strata of our population viz: the innumerable fishermen who are the primary producers of the raw material and the massive labour force directly concerned with this industry. Maintenance of high standard of hygiene and quality in the industry is highly essential since we are catering to the most sophisticated and quality conscious markets of the world.

With this point in view, the CIFT is organising a number of training courses at different centres in the country The first such course in this series on Fish Plant Sanitation, Quality Control and Inplant Inspection was conducted at Mangalore from 5th to 9th March 1979 in collaboration with the Marine products Export Development Authority, Cochin. The course which gave a detailed coverage to the topics mentioned was organised at the premises of The Fish Marketing Federation, Mangalore. Processing Technologists and Supervisors representing all the seafood exporters of the region who are directly concerned with maintenance of quality in the export commodities participated actively in the training programme. ▼

Increased Fish production from Hirakud Reservoir

Systematic survey of fish landings from Hirakud reservoir applying the method of stratified random sampling revealed that the total landings for the year 1978 was 759 metric tonnes or 15.82 kg/ hectare. This method is applied for the first time in India to estimate fish landings from reservoirs. The present information annuls the earlier concept that the fish production from Hirakud reservoir is too low [0.21 kg/ ha]. This rise in fish production, as observed is a challenge to fishery technologists concerned with both harvest and post harvest investigations. Burla Research Centre of the Central Institute of Fisheries Technology is conducting investigations to evolve suitable techniques for enhancing fish production further.

ISI Standards on Fish, Fishery products and Allied Matters

A list of standard specifications so far brought out by the Indian Standards Institution regarding fish, fishery products and related materials is given below.

S.No.	Name of specification	Number and year of publication
	A. FRESH FISH.	
1.	Fresh Silver and Brown pomfret.	IS 4780 - 1968
2.	Fresh threadfin.	IS 4781 - 1968
3.	Mackerel – fresh	IS 6032 - 1971
4.	Seer fish (*Scomberomorus spp.*) - fresh.	IS 6123 - 1971
	B. FROZEN FISH SHELL FISH	
5.	Frozen prawns (shrimp) first revision.	IS 2237 - 1971
6.	Frozen froglegs (first revision).	IS 2885 - 1975
7.	Frozen lobster tails (first revision)-	IS 3892 - 1975
8.	Frozen threadfin.	IS 4769 - 1968
9.	Frozen silver pomfrets and brown pomfrets.	IS 4793 - 1968
10.	Mackerel - frozen.	IS 6033 - 1971
11	Seer fish (*Scomberomorus spp.*) - frozen.	IS 6122 - 1971
12.	Frozen cuttlefish and squid.	IS 8076 - 1976
	C CANNED FISH AND SHELL FISH	
13.	Pomfret canned in oil (first revision).	IS 2168 - 1971
14.	Prawns (shrimp) canned in brine — first revision.	IS 2236 - 1968
15.	Mackerel (*Rastrelliger spp.*) canned in oil — first revision.	IS 2420 - 1971
16.	Mackerel (*Rastrelliger spp.*) canned in brine — first revision.	IS 3849 - 1976
17.	Sardines (*Sardinella* spp) canned in oil — first revision.	IS 2421 - 1971
18.	Sardines (*Sardinella* spp.) canned in brine and in their juice.	IS 6677 - 1972
19.	*Lactarius* spp. canned in oil.	IS 6121 - 1971
20.	Tuna canned in oil.	IS 4304 - 1976
21.	Crab meat canned in brine,	IS 7143 - 1973
22.	Crab meat - solid pack.	IS 7582 - 1975

S. No.	Name of Specification	Number and year of publication
	D. DRIED FISH AND SHELL FISH	
23.	Dried prawns – first revision.	IS 2345 - 1972
24.	Dried white baits (*Anchoviella* spp).	IS 2883 - 1976
25.	Dried and laminated Bombay buck.	IS 2884 - 1964
26.	Dry salted mackerel.	IS 4302 - 1967
27.	Dry salted seer fish.	IS 5198 - 1969
28.	Dry salted shark.	IS 5199 - 1969
29.	Dry salted surai [tuna].	IS 5736 - 1970
30.	Dry salted threadfin [Dara] and dry salted jew fish [Ghol]	IS 3850 - 1973
31.	Dry salted cat fish.	IS 3851 - 1966
32	Dry salted leather jacket [*Chorinemus* spp.].	IS 3852 - 1966
33	Dry salted horse mackerel [*Caranx* spp].	IS 3853 - 1966
34.	Dried shark fin.	IS 5471 - 1969
35.	Fish maws.	IS 5472 - 1969
	E. MISCELLANEOUS	
36.	Code of hygienic conditions for fish industry; Part I Pre processing stage – first revision.	IS 4303 - 1975 (Part I)
37.	-do- :Part II. Canning stage – first revision.	IS 4303 - 1975 (Part II)
38.	Recommendations for maintenance of cleanliness in fish industry.	IS 5735 - 1970
39.	Fish meal as live stock feed.	IS 4307 - 1973
40.	Shark liver oil for veterinary use.	IS 3336 – 1965
41.	Sardine oil.	IS 5734 - 1970
42.	Glossary of important fish species of India.	IS 7313 – 1974
43.	Basic requirements for fresh fish stalls.	IS 7581 - 1975
44.	Basic requirements for a fish market	IS 8082 - 1976
45.	Procedure for checking temperature of quick frozen foods.	IS 8077 - 1976
46.	Master cartons for export of frozen seafoods and frog legs.	IS 6715 - 1972
47.	Common salt for fish curing - revised.	IS 594 - 1962
48	Fish oil for leather industry.	IS 4056 - 1966
49.	Quality tolerances for water for food industry.	IS 4251 - 1967
50.	Quality tolerances for water for ice manufacture.	IS 3957 - 1966

GLEANINGS FROM OTHER JOURNALS

Need to Develop Inland Fisheries Stressed

Chief Minister P. K. Vasudevan Nair stressed the need to develop inland fisheries in the State like in west Bengal.

Releasing a souvenir brought out to mark the conclusion of the academic programme of the first batch of the post-graduate students in industrial fisheries of the Cochin University at Cochin on Feb. 11, Mr Nair, said the scope for development of the inland fisheries in Kerala too was bright.

The Chief Minister lamented that much of the centrally sponsored schemes which had to be implemented by the State Government turned out to be failures during the fourth and fifth plans. This was because they were drawn up without giving due considerations to local peculiarities and differences.

— INDIAN EXPRESS

Records Exports of Sea Food

Seafood exports from India have touched an all - time high of over 78,0 0 tonnes netting foregin exchange to the tune of Rs 210 crores, thanks mainly to the efforts of small-scale industrialists.

"The nation must express its deep sense of gratitude to these industrialists for developing the marine products industry within a short span of two decades. facing tremendous hazards of uncertain prices and shortage of raw materials", Mr. Arif Beg, Union Minister of State for Commerce, said at Bombay on February 9.

In his presidential address at the third Indian Seafood Trade Fair there, Mr. Beg said the Government, encouraged by this success, had decided to implement a programme that would help in increasing the quality of marine products at every stage from landing to loading for shipments satisfying the fastidious foreign buyers.

Mr. Beg Could not be present at the function and his speech was read out in his absence by the Chairman of the Marine Products Development Authority (Cochin), Mr. S. Gopalan.

— THE HINDU

(Continued on Page 11)

Note: Copies of these standards can be had from The Indian Standards Institution, Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110001, its Regional Offices: (1) Tnird Floor. Novelty Chambers, Grant Road, Bombay - 400007, (2) 5, Chowringhee Approach, P. O. Princep Street, Calcutta- 700072, (3) C. I. T. Campus, Adayar Madras- 600020. and Branch Offices:(1) Pushpak, 3rd Floor, Nurmohamed Shaik Marg, Khanpur, Ahmedabad- 380001' (2) 'F' Block, Unity Building, Narasimharaju Square, Bangalore - 560002, (3) R-26, Guru Teg Bahadur Complex, Bhopal- 462003, (4) 22E, Kalpana Areat, Bhubaneshwar – 751014, (5) Ahimsa Building (First Floor), SCO 82-83, Sector 17C, Chandigarh- 160071, (6) 5 8-56/57, L. N. Gupta Marg [Nampally Station Road,] Hyderabad- 500001 [7] D - 277, Todarmal Marg, Bani Park, Jaipur-302006, [8] 117/418B, Sarvodaya Nagar, Kanpur-208005, [9] B. C. I, Building [3rd Floor], Gandhi Maidan East, Patna-800004 and [10] Hantex Building [2nd Floor]. Railway Station Road, Trivandrum- 695001.

◆

M. R. NAIR

MR. MADHAVAN PILLAI RAJENDRANATHAN NAIR is Scientist S-3 discharging the duties of Joint Director, Central Institute of Fisheries Technology, Cochin, besides heading its Biochemistry & Nutrition Division, since April 1979.

Born at Trivandrum, Kerala, on 11th June 1931, Mr. Nair had a very brilliant academic career, passing out his Intermediate (1948), B. Sc. (Chemistry) (1950) and M. Sc. (Chemistry) (1952) of the Kerala University (the then University of Travancore), all with high first classes A rank-holder and Gold Medallist in his degree examinations, he had a brief spell of teaching profession at S. N. College, Quilon and Maharaja's College Ernakulam, before joining the Central Marine Fisheries Research Institute, Mandapam, as Research Assistant in December 1954. Promoted as assistsnt Research Officer in June 1958, Mr. Nair formed part of the nucleus of a research cell on fish processing technology at the Institute, which was transplanted into the newly organised Central Institute of Fisheries Technology, Cochin, in December 1958, the donee readily and gracefully accepting the donated cell and rapidly noursishing it into a flourishing processing Wing / Division of its own.

Working on various aspects of handling, preservation and processing of fish, Mr. Nair was promoted as Research Officer/Junior Fishery Scientist in November 1962. He was deputed for training in Fish

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Team to Promote Seafood Export

A four-member delegation under the leadership of chairman Mr. S. Gopalan of Marine Products Export Development, Authority will visit the United States for promotion of exporters of marine products.

The other members are Messrs. C. Cherian, president Seafood Exporters, Association of India, Mr. Vayalar Ravi, M. P. , and Sakti Kumar Sarkar, M. P.

The delegation will have discussions with representatives of seafood trade and officials in the United States

— INDIAN EXPRESS

Protein from the Sea

One does not have many hopes for the fishing of large fish in the future because the catches are growing smaller. For this reason the Federal Ministry for Research and Technology in Bonn is entertaining hopes from the small shrimp-like creatures called krill which at the present moment serve primarily as a source of food for the antarctic whales, but which could one day supply mankind with a profusion of proteins and vitamins. About 100 million tons of krill can be found in the Antarctic Polar waters. This roughly corresponds to twice the normal annual catches of fish in the whole world. Scientists are now trying hard to make a tasty source of food out of these small shrimps

— SCALA

LET'S TALK IT OVER

M/s. Tamil Nadu Fisheries Development Corporation Ltd., Madras.

> We have installed engines developing upto 93 HP in 43½, boats constructed by us. which give speeds around 8 knots. Kindly inform us whether the speed could be increasd if engines developing higher HP of the

order of 120 are fixed in the same design of boats. Also please indicate alteration, if any, in your design of 43½ boat required to be made to suit such higher powered engines.

CIFT: We feel that a speed of 8 knots attained with a 93 HP engine is a very good performance for a fishing vessel Increasing the HP of the engine alone cannot increase the speed unless other concomitant modifications such as propellor dimensions, draft of the vessel etc are made, which may be rather expensive. Hence we do not recommend any dimensional changes. An engine of higher HP say 165, can be installed in a bigger vessel such as a 50 footer.

Processing under Colombo Plan Programme in 1971 at Torry Research Station, Aberdeen, U.K., where he acquainted himself with the latest techniques in Protein and Enzyme Chemistry. He also worked here on cod muscle proteins, with particular reference to physical and chemical properties of myosin and determination af molecular weights of subunits of myosin and 'modified, myosin. He could enlarge his knowledge by visiting other Research Institutions in U. K. like Meat Research Institute, Bristol, Fish Biochemical Research Institute [National Enviornmental Resarch Council] and Unilever Laboratories both at Aberdeen and Rowett Research Institute, Bucksburn.

On return to India, Mr. Nair was promoted as Fishery Scientrst (Processing) and given charge of the Processing Divison of the Institute. During this assignment, he carried out elaborate research work on the enzyme, protein and lipid chemistry of many Indian food fishes and shell fishes. He took charge as Project Coordinator (Scientist S-3) of the All India Coordinated Research Project on transportation of Fresh fish and Utilization of Trash Fish in October 1975, in which capacity he coordinated the work on the project going on at the headquarters and Veraval, Bombay and Kakinada Research Centres of the Institute, besides that at other centres viz; Jadavpur University, Calcutta, Fisheries College (University of Agricultural Sciences), Mangalore, Department of Fisheries, Tamil Nadu at Madras, Konkan Krishi Vidyapeeth, at Ratnagiri, Department of Fisheries, Gujarat at Port Okha and Department of Fisheries, Orissa at Kujang. Annual workshops were organised by him to review the progress of work and chalk out programmes for the ensueing year. He held this assignment till March 31, 1979, when the project was terminated, having achieved the objectives for which it was initiated in the dawn of the seventies.

A Founder Member of the Society of Fisheries Technologists [India], Mr. Nair has also served as Treasurer and Member of the Executive Committee of the Society for several years. Besides, he is [1] Alternate Member, AFDC-27, Fish and Fish Products Sectional Committee and its Sub-Committees, [2] Member AFDC-36:9, Metallic Contaminants Sub-committee. both of the Indian standards Institution, [3] Member, Fish, Meat & their Products Subcommittee of the Directorate General of Health services, [4] Member, Society of Biological Chemists [India], [5]Member, Indian Society for Nuclear Techniques in Agriculture and Biology, New Delhi and [6] Member, Forum of Fishery Professionals He has 45 scientific publications to his credit.

▼

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WHAT THEY HAVE TO SAY ABOUT CIFT

Really good research work is being done in the Institute. The technology should go out to develop the economic condition of the country. The poor fishermen would be benefitted if the technology reaches them. I wish the Institute may play a dominant role in the developing economy of our motherland.

Mr. Narendra Singh,
Member of Parliment.

I must record my greatful thanks to the scientists of this Institute for the patient manner in which they explained the great work being done here I wish the Institute will braze new trails in its chosen field.

Mr N. Gopinathan Nair
Special Correspondent,
U. N. I., New Delhi.

A very impressive set up and useful work being done.

Mr. V K. Sehgal,
Assistant Director,
I. S. I. New Delhi.

INTERNATIONAL CASHEW SYMPOSIUM

An International Symposium on Cashew was held on 12-15, March 1979 at the Conference Hall of the Central Institute of Fisheries Technology, Cochin. It was jointly organised by the Indian Council of Agricultural Research (Central Plantation Crops Research Institute, Kasargode, Kerala), International Society for Horticultural Sciences and Indian Society for Plantation Crops. In this connection, an exhibition called "CASHEW" 79 was conducted at the premises of the Integrated/Pelagic Fisheries Project, Foreshore Road, Ernakulam. The Central Marine Fisheries Research Institute and Central Institute of Fisheries Technology put up accmbined pavilion at the exhibition.

A general view of the pavilion

Edited and published by K. C. Purushothaman, Editor-Cum-Information Officer for the Director, Central Institute of Fisheries Technology, Matsyapuri P. O., Cochin — 682 029 and Printed by him at Parimala Printers, Mamangalam, Cochin — 682 025, Kerala.

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Fish technology newsletter

Vol. 1 No. 10 April 1979

ICAR GOLDEN JUBILEE YEAR
LAB TO LAND PROGRAMME
BOMBAY RESEARCH CENTRE OF CEN
INSTITUTE OF FISHERIES TECHNO
SPECIAL TRAINING COURSES: 23RD APRIL TO 5

Inauguration of The Lab - To - Land Training Programme of CIFT at Bombay (Left To Right) Mr. A. G. Kalawar, Dr. A. Sreenivasan, Mr. N. K. Velankar, and Mr. G. K. Kuriyan Mr. T. S. G. Iyer (Extreme left) is also seen. (Report on Page - 4)

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O.
COCHIN - 682 029

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Foreword

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Abbreviation : Fishtech News

Fish Technology Nowsletter issued every month is intended to bring the fishery industry in India in touch with some of the inportant developments in fisheries technology resulting from investingations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fishtechnology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

LAB - TO - LAND PROGRAMME OF CIFT - 2

[One of the highlights of the Golden Jubilee Celebrations of the Indian Council of Agricultiural Research being observed this year is a massive LAB - TO - LAND programme to which the CIFT is contributi ng its mite. In the previous issue we had published a report on the training programme on Fish Plant Sanitation, Quality Control and Inplant Inspection held at Mangalore from 5th to 9th March, 1979. In this issue we publish a report on the training programme held at Bombay in April, 1979.]

Pilot Schemes for Fisheries Projects urged:

A two-week 'Lab-to-land' training programme of the Bombay Research Centre of the Central Institute of Fisheries Technology, Cochin, was inaugurated at Bombay on April 23, 1979. Thirty people representing different fish processing factories of Maharashtra State participated in the training programmes on (1) filleting and freezing of fish, (2) production of diversified products from low cost fish and (3) Fish Plant Sanitation, Quality Control and Inplant Inspection.

Inaugurating the training programme Maharashtra State Director of Fisheries, Mr. A. G. Kalawar, suggested that pilot schemes could be undertaken by research institutions to confirm the economic viability of projects.

He favoured assessment of the economic viability of innovations because not all of them were adopted by the Industry.

Mr. Kalawar said diversification of processing of low-priced fish was a problem as it had consumed by the people in the low income bracket. The use of sophisticated technology should not take it beyond the reach of the consumer.

The State Fisheries Corporations too, could take up the pilot studies for selected projects, perhaps with assistance from the Indian Council of Agricultural Research, he said.

A similar view was expressed by Dr. A. Sreenivasan, the noted Scientist and former head of biochemistry and food technology, division of the Bhabha Atomic Research Centre, who presided. Dr. Sreenivasan also emphasised the need for technological research to develop the fish processing industry in India.

Both the speakers as also Mr. N. K. Velankar, former Director of the Central Institute of Fisheries Education, emphasised the importance of fish plant sanitation.

Mr. G. K. Kuriyan, Director, CIFT, outlined the Institute's programmes for this year including the present one. Five backward fishing villages would be selected from Kerala, Gujarat, Goa, Andhra Pradesh and Orissa for improvement of the economic well being of fishermen families by introduction of proven technology worked out by the Institute, he said.

★

CIFT SCIENTISTS GO TO THE VILLAGES

From March, 1979 the rural orientation training of the current batch of ARS Scientists started with a view to provide them with a first hand view of rural problems especially those connected with fisheries technology. During the first few weeks they acquainted themselves with fishermen, prawn peeling sheds, and fish processing factories in and around Cochin and made a systematic study of their practical problems. From the middle of April they were engaged in an intensive two-week programme organized in active collaboration of the Kerala Fishermen's Welfare Corporation at Trivandrum and adjoining areas when they had occasion to discuss fishermen's problems with policy makers, scientists, technologists and administrators and also visited fishing villages at first hand. Some of the memorable and useful experiences include: A visit to one of the successful fishermen's cooperatives at Marianad; survey of the fishing village Adimulathura, visit to the voluntary organization 'Mitraniketan', expert lectures-cum-discussions by many officers of KFWC and by other officers, etc. At the end of each day, the Scientists used to pool together what they learnt and discuss possible solutions. Some of their reports would be presented in Fish technology Newsletter in the forth-coming issues. Every participating ARS scientist got plenty of ideas for engaging him in meaningful and relevant research problems during the future which is the main objective of such training.

WORKSHOP ON STANDARDISATION OF FISHING VESSELS

A one-day workshop on standardisation of Fishing vessels was held at Delhi on April 12, 1979. Organised by the Indian Standard Institution, the workshop was attended by representatives of Union Ministry of Agriculture, Industry and Shipping & Transport, seven State Fisheries Departments including Kerala, CIFT, Cochin, Exploratory Fisheries Project, Bombay, ITC (Fisheries Division), Tata Oil Mills (Fisheries Division), Union Carbide (Fisheries Division), Shipyards involved in Fishing construction besides all members of Fishing Committee MCPD 21 and standing committee members on Marine & Cargo Movement (SWCMC)

The workshop was organised with the objective of consolidating the problem of technical standardisation of indigenous and imported fishing vessels and their components, and to develop necessary data which shall be useful for undertaking the comprehensive standardisation activities at the National level.

Mr. G. K. Kuriyan, Director, CIFT, Cochin, attended the workshop and actively participated in the discussions and deleberations.

★

SCHEMES TO PLANT TREES INAUGURATED

With the help of 'Friends of the Trees' the staff of the Central Institute of Fisheries Technology, Cochin, have launched a scheme to plant trees and flower garden in the premises of CIFT quarters at Thevara.

The scheme was evolved in connection with the Golden Jubilee Celebrations of Indian Council of Agricultural Research and International Year of the Child.

Inaugurating the scheme CIFT Director, Mr. G. K. Kuriyan, said I. C. A. R. had given instructions to all its Institutes to implement this scheme under which "each child will plant a tree" in connection with the International Year of the Child.

State Vice - President of the 'Friends of the Trees', Dr. C. T. Samuel and Secretary, Mr. Joseph Alexender also spoke on the occasion.

Mr. James Abraham welcomed the gathering.

Indian Standards on Textile Materials for Fishing Purposes

With the production of synthetic twines within the country for fishing purposes the necessity to evolve quality standards for the various types of twines, was keenly felt by the industry. The CIFT after extensive studies on the various gear materials produced in the country has evolved quality standards which have since been accepted as the Indian Standards. Consequent on the introduction of mechanisation of fishing crafts in the late 1950's and progressive strengthening of the mechanised fishing fleet base of the country, the Institute's efforts were directed towards evolving suitable fishing gear for operation from these vessels. Many designs of trawl nets and gill nets were developed and standardised by the Institute for the purpose which were subsequently accepted as the Indian Standards for these Standards on Textile Materials for fishing purposes is given below for the benefit of all concerned with the fishing industry.

Name of Standard	Number and Year of Publication
Specification for Nylon fish net twines	4401 – 1967
Glossary of terms relating to netting for fishing - Basic terms	4402 - 1967
Method for designating netting yarns in the tax system	4640 - 1968
Method for describing and designating knotted netting for fishing nets	4641 - 1968
Specifications for cotton twines for fish nets Part I. Twines for gill nets	4945 Part I 1968

Specification for cotton twines for fish nets. Part II. Twines for trawl nets	4945 Part I - 1968
Guide for fishing gear	5508 Part I to V - 1969
General	Part I
Data Sheet for 11.40 m two seam cotton trawl net	Part II
Data Sheet for 13 m two seam cotton trawl net	Part III
Data Sheet for 18.25 m two seam cottam trawl net.	Part IV
Data Sheet for 26 m two seam cotton trawl net.	Part V
Guide for fishing gear	5508 (Parts VI to XIII) 1972
Data sheet for 13.69 four seam shrimp trawl net	Part VI
Data sheet for 18 m four seam trawl net	Part VII
Data sheet for 22 m four seams shrimp trawl net	Part VIII
Data sheet for 33 m four seam trawl net	Part IX
Data sheet for seer gill net	Parf X
Data sheer for silver pomfret gill net	Part XI
Data sheet for sardine gill net	Part XII
Data Sheet for framed gill net for inland waters	Part XIII
Guide for fishing gear	5508 (Parts XIV to XVI) - 1975
Data sheet for 325 m purse seine	Part XIV
Data sheet for 350 m purse seine	Part XV
Data sheet for 450 m purse seine	Part XVI
Guide for fishing gear	5508 (Parts XVI & XVIII) - 1979
35 m Bulged Belly trawl net	Part XVII
50 m Bulged Belly trawl net	Part XVIII
Methods of test for fishing Gear Materials	5815 (Part I) 1970
Determination of Linear Density (Mass per unit length)	Part II
Methods of test for Fishing Gear Materials	5815 Part III 1970
Determination of twist	Part III
Methods of test for Fishing Gear Materials	5815 Part IV 1971
Determination of Beraking Load and Knot Breaking Load	Part IV
Methods of test for Fishing Gear Materials	5815(Part V 1971
Determination of Mesh Breaking Load	Part V
Specification for Polyethylene monofilament twines for fishing	6347 - 1971
Basic terms for handing of netting	6348 - 1971
Method of cutting knotted netting to shape (tapering)	6920 - 1972
Twines made from twisted tapes of polyethylene	7165 - 1973
Specifications for polyamide (Nylon) Monofilament Line for fishing	7533 - 1975
Specificications for Twines made from Fibrilated high density polyethelene tapes	8303 - 1977
Terms and Illustrations for mounting and joining of netting for fishing nets	8746 - 1978
Specifications for Nylon fish net twines (First Revision)	4401 - 1976

BIOLOGICAL DETERIORATION IN WOODEN FISHING BOATS: FUNGUS INFECTION

Biological deterioration or degradation of wood is caused both on land and in water by wood-inhabiting fungi. Catamarans, dugout Canoes, built-up boats and modern mechanised wooden boats are employed for fishing in India. All these crafts are generally invaded by certain lower forms of plant organisms known as fungi. They are distinctly different from ordinary green plants in form and method of nutrition. They are parasitic in nature and derive their food from the cell cavities of the host-wood. Fungi possess certain enzymes capable of digesting the cellulose. Due to their digestive action, the host timber becomes soft and spongy, thereby reducing their service life. In dry condition the wood develops cracks which gradually grow longer and deeper resulting in the failure of such structures. Fishing crafts which have undergone such degradation. have to be periodically repaired or replaced, the cost of which runs to several lakhs of rupees. Hence the problem is of considerable economic importance and proper maintenance is essential.

Wood decaying due to fungus infection also becomes light, and inflammable and emits a mucky and unpleasant odour. They get fully soaked in water and become heavy. They lose all the nail holding properties and does not retain strength. Fungal attack in wood is like cancer n animals and as such the affected wood has to be totally removed and burnt. Prevention is always better than cure.

Fungi require certain conditions such as suitable food, sufficient amount of moisture and favourable temperatures for their growth.

Based on the chemical reaction on the wood and resultant colour two broad types of fungial, degradation ramely, white rot and brown rot are recognised.

The parts of the boat most susceptible to decay are the stem, transom planks, frame heads and floor timbers, beam ends and shelves, bulwark stanchion ends and bulkheads. Salt water members above waterline are more liable to decay than exposed surfaces. As fungi require alternate dry and wet conditions, catamarams and canoes which are periodically hauled up after fishing provide ideal conditions for their growth.

Poor material such softwood and unseasoned wood going into construction of fishing craft, warm climate, leaky seams, lack of ventillation, dead air spaces etc. are factors responsible for most of the decay.

Fungal decay of wood can be prevented by using decay resistant heart wood for construction and avoiding sap wood. Seasoned wood (below 20% moisture level) alone should be used. Infected wood should be avoided in construction. All water should be kept out and all the seams well caulked. Painting in bolt holes and in seams before

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CIFT - CMFRI Pavilion Bags First Prize

The joint stall put up by the CIFT and CMFRI at the Aginex, '79 Exhibition at Cochin bagged the first prize under the Category of Govt/ Semi-Govt. departments. The exhipition was organised by the Rotary Club of Cochin. Mrs. Philipose Thomas, wife of the District Collector, gave away the prizes and certificates.

DR. GAUTAM; NEW ICAR CHIEF

Dr. O. P. Gautam, the reputed Scientist took charge as the Director General, Indian Council of Agricultural Research and Secretary to the Govt. of India, Ministry of Agriculture & Irrigation (Deptt. of Agricultural Research & Education) on March 31, 1979.

Born : 24 January 1924. Education : B. Sc. (Agra) ; M. Sc. Agric. ; (Agra) ; Ph. D., University of California, Davis, USA.

Professional Positions :

Assistant Professor (1948-51), Professor of Farm Management (1951-55), Professor of Agronomy (1958), B. R. College, Agra; Research Assistant, Department of Agronomy, University of California Davis, California, USA (1955-57) ; Professor of Agronomy (1958-60), Head, Division of Agronomy (1960-63), Deputy Director (Research) and Head, Division of Agronomy (1963-66), Indian Agricultural Research Institute, New Delhi Deputy Director-General, Indian Council of Agricultural Research, New Delhi (1963-66, 1976-79); Agricultural Educator, South-East Asia Region, World Bank, Washington DC, USA (1973-76); Director-General, Indian Council of Agricltural Research, New Delhi (1979).

Positions in International Scientific Committees: Consultant to UNESCO to advise on the development of the Faculty of Agriculture of the University of Malaysia, Kuala Lumbur (1971) ; Project Director of the UNDP / UNESCO / FAO Project on Postgraduate Agricultural Education and Research

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they are caulked is helpful. A common points for entry of water are nail, exposed bolts and other fastenings. The general practice of counter sinking heads of tight bolts and closing the openings tightly with wooden plugs prevents much of the hull planks decay. Metal fastenings should be kept tight. Exterior paint keeps out moisture. Painting inside the hullplanks be avoided to allow the hull planks to breath. The moisture that has entered into wood can be got rid of by drying or airing. Suitable commercial wood preservatives may be applied at the time of construction and repeated periodically while in use.

The following wood preservatives are recommended.

1) Pentachlorophenol 2) Ascu 3) Pentaphene tar 4) Tributyltin oxide 5) Arsenical Creosote (CIFT formulation). While employing these preservatives the manufacturers' instructions regarding dosage, precautions and methods of application should be carefully followed. As most of these preservatives are toxic to human beings, care should be taken to avoid their contaminating food and drinking water.

(NOTE : 2 MARINEN WOOD BORERS)

Next Issue :

GLEANINGS FROM OTHER JOURNALS

'Lab - to - Land' Project for Harijan Farmers

The Central Marine Fisheries Research Institute (CMFRI) has adopted about 100 Harijan farm families in the Valappu village, Vypeen island, abou 10 km from Cochin for the transfer of technology under the 'lab-to-land' programme initiated by the Indian Council of Agricultural Research to commemorate its golden jubilee year.

The Director - General of ICAR, Dr. M. S. Swaminathan, inaugurated the programme by sowing prawn seeds of 'Naran' and export variety prawn.

The programme covers an area of 3.2 hectares where the prawn culture technology developed by the CMFRI would be transfarred to the Harijan farmers.

Speaking on the occasion, Dr. Swaminathan said the aim of the project was to transfer the latest techniques to the farmers.

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in India (1971-73, 1976–78); Fund Administrator of the National Agricultural Research Project funded by the World Bank (1978-todate); Project Director, ICAR-UNICEF Project on Nutrition Education and Research at Agricultural Universities; Member of the Indian Delegation to the Commonwealth Scientific Conference, Ghana (1966); Member of the Indian Delegation to the International Commission on Irrigation and Drainage, New Delhi (1966); Member of the Delegation of Vice-Chancellors to the Convention of US Universities and Land Grant Colleges at Washington DC (1967); Member of the Indian Delegation to the Technical Assistance Conference, Purdue University, USA (1969); Member of the Indian Delegation to the World Education Conference, Copenhagen (1970); Member of the Indian Delegation to the Travelling Seminar of Asian Agricultural Universities, Bangkok (1970); Leader of the Indian Team for Negotiating Educational Project with IBRD' Washington DC (1972); Member of the Indian Delegation to the Regional Conference on Education for Development, New Delhi (1977); Leader of the High Level Team to study Agricultural Education System in Hungary (1977); Leader of the Delegation of Vice-Chancellors to study Agricultural Education System in USSR; Leader of the Indian Team for Negotiating National Agricultural Research Project with IBRD, Washington DC (1978).

Recognitions : Joint Secretary, Indian Society of Agronomy (1964-65); Vice - President, Indian Society of Agronomy (1966-70); Chief Editor, Indian Journal of Agronomy (1966-70); President, Indian Society of Agronomy (1973-74).

Publications : Published about 60 scientific papers in the field of agronomy and agricultural education. Co-author of the following reports. Reports of the Indo-US Study Team for assignment of USAID Technical Assistance Programme to Agricultural Universities in India (1967); Assessment of the Punjab Agricultural University progress (1970); Methodology for the assessment of progress of Agricultural Universities in India (1970); Completion Report of the First Education Project in the Philippines (IBRD,1973); Education Sector Survey in Indonesia (IBRD, 1974); Appraisal Report of the Second Education project in Bangladesh (IBRD, 1979) Appraisal Report of the Fourth Education Project in the Phillippines (IBRD, 1976) Report of the Agricultural Universities Review Team (1978).

Fishing Harbour For Kakinada

Andhra Pradesh Chief Minister, Mr. Chenna Reddy laid the foundation Stone of a Rs. 7.5 crores fishing harbour complex at Kakinada in March this year.

Speaking on the occasion, Dr. Reddy said it was unfortunate that the abundant fish wealth all along the State's coastline of 892 km could not be tapped fully. As a result the standard of living of the fishing community had not been sufficiently improved as compared with the other sections of the society, he added.

— INDIAN EXPRESS

Catfish Can Foresee Earthquakes

Catfish can predict earthquakes by acting wildly before they occur, according to seven-month experiment conducted by Tokyo Metropolitan Government experts.

Data of the experiment, which gave scientific backing to the catfish's legendary prowess in predicting earthquakes, were presented to the Metropolitan Disaster Prevention Council.

The experiment was conducted with 10 catfish placed in three water tanks at the marine testing station.

— HINDU

Fisheries Project

A massive World Bank-aided fisheries project costing Rs. 34 crores in all is under way at Veraval and Mangrol fishing centres of Gujarat. The World Bank and IDA assistance in the form of loan or credit totals Rs. 14 crores.

The project scheduled to be completed by 1981, includes dredging of the channel, harbour constructions at the two centres and creation of two break waters.

INDIAN EXPRESS

Aid Under Village Development Scheme

A sum of Rs. 15 lakhs has been sanctioned by the Union Government for development works in Chavara Block, Quilon district, under the Integrated Village Development Schemes.

According to this scheme, 500 families of nominal farmers would be granted a sum of Rs. 5 lakhs, for starting small industries. So far 400 such families have been selected among which 100 families belong to the Scheduled Castes and Tribes.

A sum of Rs. 2,500 each has been sanctioned to 150 such families for purchasing country boats and nets. Another 100 families have been granted Rs. 2,500 each for purchasing milch cows. Twenty have been sanctioned Rs. 4,000 each for buying bullocks and carts. Another batch of 20 families have been sanctioned Rs. 2,000 each for purchasing oxen and other agricultural purposes. Besides this Rs. 400 each has been granted to 100 families for purchasing goats.

Under the schem, it is intended to grant aid for irrigation works, to dig wells and to purchase pumpsets. The amount would be granted by the nationalised banks and co-operative service societies.

— HINDU

LET'S TALK IT OVER

M/s. Leo Industries, Post Blair :

What is the process for complete removal of oil from shark liver residues for subsequent use in poultry feed ?

CIFT : As you know, the liver residue obtained after extracting the shark liver oil by the ' water bath process ' contains some percentage of oil which makes it unfit for use as poultry feed. The oil content can be considerably reduced by repeating the ' water bath process ' several times with the liver residue. The cake thus obtained can be mixed with miscellaneous varieties of fish and fish meal produced in the usual way by using rotary steam drier.

M/s. Diana Shark Liver Products, Karnataka :

We wish to know as much about sharks and other fish liners as possible and various methods of extraction of oil. Would you please suggest some books ?

CIFT : Given below are the names of a few reference books on fish oil which are available with any reputed bookseller.

1) Fish Oils — M. E. Stansby The Avi Publishing Co., West Port, Connecticut, USA
2) Marine Producers of Commerce- Dr. K. Tressler —West Port, Connecticut. USA
3) Fish as Food Vol. I — IV — George Boystorm, The Academic Press Inc (London) Ltd. 17, Old Queen St., London SWI

Mr. B. Mohan, Karnataka Fisheries Devt. Corpn., S. Kanara :

I would like to know the process worked out by CIFT for freezing of Cooked whole lobsters.

No Over Exploitation of Marine fishery Resources

There is no over exploitation of the marine fishery resources except to some extent in the case of shrimp for export purposes. The Government had been encouraging all the maritime States to develop diversified fishing, particularly purse - seining. The State Fisheries Corporations of Karnataka, Orissa, Tamil Nadu, and Kerala had been provided with 100 per cent central assistance for introducing diversified fishing on a pilot scale.

— HINDU

Appointments

Dr. K. Jagathesan, Scientist S-I has been appointed as Associate Professor (Fish Technology) at Tamil Nadu Agricultural University.

On reversion from I. I. H. R., Bangalore. Mr. V. N. Rajasekharan Nair, Senior Clerk rejoined duty at CIFT Headquarters.

Mr. C. Sreedharan joined as Supporting Staff Grade I at CIFT Headquarters.

Mr. P. I. Abraham joined as Technician - I (Driver) at Bombay Research Centre.

●

Meet Our Scientists—4

R. BALASUBRAMANYAN

Mr. R. Balasubramanyan, M. Sc., A. R. S. (Fish & Fisheries Science) is S-3 Scientist at the headquarters of the C. I. F. T. at Cochin, who is now the Head of the Craft & Gear Division

←

Mr. Bala Subramanyan, more known as BALAN, was born in Salem Town (Madras) from where he finished his early schooling in 1943 with double distinction in science and chemistry; completed his intermediate course in Arts & Science in 1945 with a Second Class and later in 1947 obtained his B. Sc. degree in Science with a high second Class both in Zoology and Botany from the Annamalai University.

During 1948–'49 he underwent the All India Post-graduate training in fisheries conducted by the Ministry of Agriculture, Govt. of India, which he completed securing a FIRST CLASS and the FIRST RANK

CIFT : Very fresh, preferably live lobsters, should be taken for processing. Clean in potable water and place in wire baskets by dipping in boiling 5% sodium chloride solution for 25-30 minutes and cool in air. Bigger size lobsters require slightly longer time for cooking. Effective cooking is indicated by turning of the colour to bright red. Wrap the lobster sindividually with polythene paper (150 gauge) and freeze at -35 to -40°C. After freezing pack the froxen lobsters in corrugated fibre board boxes or dealwood lined in side with moisture proof material.

in the final examination. Later, working as a part-time research student of the Cochin University in the Faculty of Marine Sciences, Shri. Balan was awarded with a First Class M. Sc. degree for his commendable research thesis.

Mr. Balasubramanyan can be proud of his 30 long years of service in fisheries research and development work since 1949. Before joining the Madras Government Fisheries Department in 1949 he was teaching Zoology at the Madras Christian College, Tambaram for a year. In early 1954, he joined the Central Fisheries Service and worked for 4 years as the Assistant Fisheries Training Superintendent at the Central Inland Fisheries Research Station (present CIFRI) at Calcutta. In 1958, he was appointed as the Assitant Director (Craft) at the Central Fisheries Technological Research Station (present CIFT) at Cochin where he is now continuing to work as a Sr. Research Scientist and Head of the Craft & Gear Division.

Mr. Balan took an impressive role in the planning and organisation of the various research activities of CIFT in close association and under the guidance of Mr. G. K. Kuriyan, the present Director and a host of F. A. O. experts attached to the Institute.

Specalising in the field of technological research on fishing Craft & Gear, he has completed several useful research projects and has also organised a number of 'ad hoc' training courses, ' open houses' and ' workshops ' at the CIFT. Results of many of his research findings are today finding commercial and industrial utility.

Mr. Balan has published nearly 70 scientific papers to his credit so far apart from many others published under his direct supervision and guidance.

Two of his scientific papers were presented and read at the 2nd and 3rd International Congress on Marine Corrosion and Marine Fouling held in Athens (Greece-1967) and Florida (U. S. A. 1971) respectively, the former brought him a " BRONZE MEDAL" in appreciation of his paper.

He is a member of the 1) Marine Corrosion Committee of the C. S. I. R., New Delhi 2) alternate member of the Marine Cargo and Package Division (MCPD) of the I. S, I. 3) founder member of the Marine Biological Association of India and 4) founder member and the present Secretary of the Society of Fisheries Technologists, India. He is also a member of the variou committees of the Institute.

He has been the great lecturer and the external examiner of the Calicut University, Central Institute of Fisheries Education, Bombay and the Central Institute of Fisheries Operatives, Cochin.

Mr. Balasubrhmanyan, who is in his early fifties is an active social worker, a play wright and a stage actor. He is also currently doing part-time research for his Ph. D. degree. He has just completed a short term consultancy assignment with the F. A. O. SIDA fisheries project.

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FAO Fisheries Project in Bay of Bengal

A project for the development of small scale fisheries in the Bay of Bengal funded by the Swedish International Development Authority is to be executed by the Food and Agricultural Organisation from Madras.

Forming part of the FAO's general Indian Ocean fisheries survey and and development programme; the project Includes experiments which will help the artisan-fishermen.

The research activity will cover the Bay area touching Tamil Nadu, Andhra Pradesh, Oriss a and West Bengal, Bangladesh, Malaysia and Thailand. International fisheries experts will join the project to develop new techniques of fishing, marketing and processing.

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What they have to say about CIFT

I am delighted to visit the Institute and see the good work being done for the development of the Fisheries Industry in India. This will be of immense help to industry.

Mr. OSMAN ALI KHAN,
Orient Marine Projects, Bombay

A very informative and educative visit.

Mr. Kishnan Singh,

Indian Institute of Sugarcane Research,
Lucknow,

Everything was marvellous. I shall never forget my stay and work at CIFT.

Mr. LOUSIA ALMAGIA
FAO, Rome

Edited and published by K. C. Purushothaman, Editor-Cum-Information Officer for the Director Central Institute of Fisheries Technology, Matsyapuri P. O., Cochin - 682 029 and Printed by him at Genuine Printers & Publishers Cochin - 682 016, Kerala.

SINDHU KUMARI
FLOATING FACTORY
Rs

GOLDEN JUBILEE 1929 1979 ICAR

Fish technology newsletter

Vol. 1 No. 11 May 1979

C.F.T.R.I. 22.5.80

Sh. N. Kaleeswaran, Vice-Chancellor, Kerala Agricultural University, Inaugurating the Lab - To - Land Programme on Improved Methods of Fish Curing at Calicut (sitting left to right): S/Sh. M. R. Nair, G. K. Kuriyan and A. G. Vasavan.

(Report on Page - 4)

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

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Foreword

EDITORIAL COMMITTEE

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We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

Abbreviation : Fishtech News

LAB - TO - LAND PROGRAMME OF CIFT - 3

[One of the highlights of the Golden Jubilee Celebrations of Indian Council of Agricultural Research being observed this year is a massive - LAB - TO - LAND programme to which the C I F T is contributing its might. In the previous issues we had published reports on training programmes held at Mangalore and Bombay. In this issue we publish reports on field demonstrations on canning of clam meat and improved fish curing method held at Kumarakom and Calicut respectively.]

Canning of Clam Meat:

Kumarakam is a typical village on the bank of the Vembanad lake in Kottayam District, falling in the Kuttanad region of Kerala. Many villagers in this area collect clams as part of their livelihood. Clam shells are used for making lime and white cement, whereas, the meat is boiled and sold locally at a low price. To increase the returns from clam meat, it is necessary to process the meat in a better way and to preserve it for distribution in better markets. The Central Institute of Fisheries Technology has evolved a technology for preserving it by way of canning, pickling etc.

In view of the interest

Kumarakam Panchayat President Shri. V. Divakaran Inaugurating the field demonstration on canning of clam meat

shown by the local people, a two-day field demonstration on canning of clam meat was organised at Kumarakam in May, 1979.

Inaugurating the programme on May 14, Shri. S. N. Rao, State Fisheries Director, assured all possible help including finance and equipments to co-operative bodies coming forward for undertaking any canning programme of clams.

While appreciating the programme, Shri. Rao also cautioned about the necessity for taking simultaneous steps to ensure adequate productivity of clams.

In his presidential address Kumarakam Panchayat President, Shri. V. Divakaran spelt out the importance of clams in as much as it influences the social and economic aspects of Kumarakam and other villages adjoining Vembanad Lake. He appealed the Scientists to persue with enthusiasm and dedication, the matter of transfer of proven technology in such a way that it can benefit the rural poor engaged in clam fishery for their economic betterment.

S / Shri. Illikalam John Abraham and Dan M. Peters also spoke on the occasion. Eighty persons representing 30 fishermen families and various co-operative societies took part in the demonstration-cum-training programme. Various steps involved in canning of clam including the equipments required, its approximate cost, marketing feasibility and other technical details were also discussed.

Deshelling of clam

This was a programme through which the poor fishermen of Kumarakam and surrounding areas could learn improved techniques of clam meat preservation and supplement income. Besides, a perishable commodity like clam meat can now be available to many more consumers in far away places.

Improved Fish Curing Methods:

Cured fish is at present made in a most unhygienic and unscientific method. The cured products prepared under unhygienic conditions, using salt of very low quality, is susceptible to contamination with the red halophylic and other objectionable bacteria. The overall quality of these products is deplorably poor.

Cleaning of clam meat

The product is often repelling and the shell life of such products is also very short. Due to these reasons, the middle class and well to do people who can afford to pay a better price, generally avoid purchasing cured fish If hygienically prepared and neatly packed, cured fish is marketed through urban super markets in convenient consumer packs, the product is sure to have a very lucrative market. Many people actually even prefer salted fish to fresh fish. It is only the deplorably poor quality and lack of proper packaging that is preventing such people from purchasing cured fish, so if our fish curers are made conscious of these facts and are persuaded and trained to adopt scientific and hygienic methods of curing, their income is sure to go up tremendously. With this end in view the Calicut Research Centre of CIFT organised a two-day programme to educate the poor and illiterate fishermen of the Calicut coast about the necessity and advantages of adopting scientific and hygienic methods of fish curing.

The programme was inaugurated by Kerala Agricultural University Vice Chancellor, Shri. N. Kaleeswaran at Vellayil on May 22, 1979. Speaking on the occasion Shri. Kaleeswaran emphasised the need of transferring the technology developed in the Laboratory to the field so that the people, especially, the rural folk could derive maximum advatange out of it. He also pointed out this type of training programme could greatly improve the economic status of the backward masses in the rural areas.

Kerala Fishermen Welfare Corporation Managing Director, Shri. A. G. Vasavan presided over the function. Shri. M. R. Nair, Joint Director of CIFT, welcomed the gathering.

A fisherman cutting a fish during curing

Fifteen persons sponsored by the Vellayil Fish Curers' Society participated in the training programme conducted in the Fish curing yard of Shri. P. Chandran of Vellayil beach.

The curing yard was arranged according to the lay out already perfected by the Calicut Research Centre. Training in handling fresh fish, cleaning, dressing - washing - and draining, salting (including weigh out the required amount of salt) and stacking the salted fish in tank was conducted. How to maintain proper hygiene in the curing yard and surroundings was also demonstrated.

Washing and Salting of Fish

Next day, training was given to dry the salted fish properly. The salted fish was taken out in clean strainers made of bamboo, dipped in fresh water to remove any adhering solid salt from fish surface, and spread on drying racks made of bamboo covered with nets.

After drying for about 24 hours, the participants were shown how to pack the dried fish in polythene bags.

Films on the hygienic method of curing fish and related aspects were also shown to the trainees on the concluding day.

It is proposed to conduct this programme regularly in every season and extend to other centres of that region. The products prepared in this way by the Fishermen will be packed in attractive polythene bags, as convenient consumer packs. These are planned to market through the local super market. The increased returns thus received by these curers is expected to inspire other curers also to adopt such methods of curing, packing and marketing. This is thus expected to bring about a silent revolution in the economic status of the poor fishermen engaged in fish curing.

★

National Collection of Aquatic and Fish Bacteria

Since 1961, the Microbiology Division of the Central Institute of Fisheries Technology had been working on a comprehensive programme on the microbiological studies on marine fish, shell fish and processed fishery products. After gathering quite a large volume of information on the quantitative and qualitative nature of the microflora of ocean-fresh fish, iced and frozen fishery products attention was turned to the microbiology of canned fishery products. Here

one meets with a different type of flora as distinct from those occurring naturally on ocean-fresh sea foods. A separate study was initiated on the occurrence of food poisoning organisms like *Clostridium* spp. In all these studies, thousands of cultures had been isolated and their identity established up to the generic level if not to species in every case.

It is well known that identification of Gram negative rods of marine origin is beset with considerable amount of uncertainity. The pioneering work of Dr. S. M. Shewan and his colleagues at the Torry Research Station is well known. In 1960, he and his co-workers put forward a tentative scheme for the identification of marine Gram negative rods and this formed the basis for the identification scheme for these organisms. However, most of the identification schemes are scattered widely in literature and are in fact undergoing occasional modification at the hands of marine microbiologists all over the world.

For our purpose, we have chosen the most reliable method developed till date and the cultures have been characterised with reference to that. The present collection, totalling to about one hundred well-defined cultures, forms the nucleus for the National type collection.

Of late, interest in marine microbiology is shown by quite a few of the National Laboratories and Universities existing in maritime states. This has necessitated the development of such a collection to which marine and fishery bacteriologists are invited to deposit their cultures so that their isolates may not be lost but can be made available for future comparison and studies. By this scheme, it is hoped that studies on marine and fishery bacteriology in the country would progress in a more systematic way.

MAINTENANCE OF WOODEN FISHING BOATS

For obtaining long and trouble - free service from fishing boats, adequate care has to be taken in their proper maintenance at regular intervals, at least once a year. Under monsoon conditions fishing is mostly irregular. This time is most opportune for boat-owners to attend to the maintenance of hull and machineries so that the boat is in a thoroughly fit condition to go into action as soon as fishing conditions improve. Further it may not be possible to check and attend to certain major repairs when the boat is afloat. The suggested schedule for hull maintenance is as follows:-

1) Before hauling the boat ashore, remove mast, derricks, stay wires and all other heavy items of removable stores including ballast etc. The boat has to be made as light as possible and carefully hauled ashore.

2) The boat should be kept off the ground sufficiently high to permit free air movement underneath as well as in and around them. Care has to be taken against the possible attack of white - ants. This can be done by providing metal shields in the keel blocks and other supporting structures. The boat should be protected from sun and rain.

3) Remove all the bottom foulers on the hull with a sharp metal scraper when they are still wet (when they dry up it is rather difficult to scrape them off). Scrape off the "algal belt" seen just above and below the water-line.

4) Examine the hull sheathing carefully, particularly at the stem, keel and rudder. If the hull has been leaking before, the sheathing has to be removed at such places. The seams and joints have to be checked, recaulked and properly filled with 'Putty'. The sheathing should extend 15 to 22 cm above water line both forward and aft.

Look for marine-borer-holes-if any and fill them with wooden plugs or with any good seaming compound. If the damages are great, it is advisable to replace such members without fail.

If the caulking material has been eaten away at the seams of the hull planks, better renew them in the conventional manner either using treated cotten threads or 'Oakum' and fill up with a suitable seaming compound like white putty, CNSL resin or the special polyester seaming compound as has been recommended by this Institute.

The entire wooden hull below water line should receive two or more coats of coal-tar or its derivatives like creosote. In between the coated wooden hull and the metal sheathing thick layer of insulation of tarfelt underlay is always recommended.

The metal sheathing in convenient lengths will have to be firmly fixed on to the hull using to the recommended type and quality of fastenings. It is very essential not to allow any voids in between the sheathing and the insulation. *For copper sheathing work, use only copper tacks and not of iron, G. I. or aluminium. With aluminium sheathing use only aluminium alloy fastenings - screws or tacks.*

While copper sheathing does not require any further coat of anticorrosive or antifouling paint under normal circumstances, aluminium and FRP sheathing requires painting as per the schedules recommended by this Institute The Schedules are reproduced below for ready reference.

Painting schedules recommended by the CIFT for the hull below waterline of wooden fishing boats

Details	Copper sheathing	Aluminium sheathing	FRP sheathing
1. Etching primer to ensure better adhesion of the subsequent coats of paints.	Not Necessary	Etching primer on both the sides of new Aluminium sheets is essential	Etching primer only on the exposed surface is necessary
2. Anticorrosive paint	Not Necessary	Two coats of Zinc chromate paint on both the sides of the sheathing OR one coat of zinc chromate and one coat of epoxy coal tar.	Not necessary
3. Antifouling paint for preventing the settlement of the marine fouling organisms (plants and animals)	Normally necessary but recommended for old sheets	Two coats of any good quality antifouling paint which will give about 8 to 10 months of fouling free life.	Two coats of antifouling paint as for aluminium alloy sheathing

N. B. During the annual hauling, If bare metal of the old sheathing is exposed, renew the anticorrosive and anti-fouling paints as recommended. Launch the boat when antifouling paint is still wet and tacky. Never allow it to dry completely.

5) Leaky decks are responsible for rapid deterioration of the internal timber structures. Rake out the deck plank seaming compounds that have become brittle and fill them with fresh compounds after re-caulking, if necessary, Frequent application of any good oil (linseed oil or Poon Oil) keeps the deck planks free from splitting and weathering.

6) After thoroughly cleaning the inside of the hull, check the frames, shelves, beams, stringers and bulk-heads for the presence of 'Dry-rot'. Pentachlorophenol / copper / or Chrome Arsenic compounds can be used as wood preservatives. Good ventilation inside the hull is absolutely necessary. Fish hold must always be kept clean in a most hygienic condition with the frequent application of suitable disinfectant.

7) Above water-line on the outside hull, scrape off all old paint, thoroughly clean and allow it to dry. Wooden structures recently renewed should receive two coats of any good quality wood primer. Give two uniform finishing coats of good quality top coat wood - paint of any desired colour. There is no need to paint the inside of the hull as it would slow down the drying of the wet wood particularly at the bilges.

All ferrous structures should be thoroughly chipped, brushed and cleaned to remove rust and mill scale. The choice and application of priming paint is the most important factor. Red lead and zinc chromate are good rust inhibitive primer paints and over them good quality finishing paints have to be given. Painting of ferrous structures should be attended to at regular intervals depending on the intensity of corrosi n.

8) Check up all external fastenings at all assembly points for slackness and corrosion. Badly corroded fastenings should be replaced at all costs. Bimetallic contacts have to be carefully avoided. Rudder and stern gear fittings have to be thoroughly checked for possible failures.

Check The Sea - Cock

9) Damaged propellers and major repairs to the main engine and other machineries should be left for attention under competent hands. Minor dents on the propeller blade edges can be cleaned up with a file and finally treated with emery paper. Excessive wear of the propeller blades may be due to the galvanicaction and as such no metals of greatly different potentials should be in the vicinity of the propeller. Cathodic protection can be ensured by providing sacrificial zinc blocks (Electrolytic zinc only) at appropriate places near the propeller on the stern post or rudder.

Unprotected wooden structures will rapidly deteriorate due to biological agencies, Unprotected metallic structures will corrode and wear out rapidly. Hull sheathing may be damaged due to abrasion/ running aground. So it is essential / or to check these items carefully from time to time. Boats well cared for and well maintained last longer and serve better without breakdowns.

APPOINTMENTS

Sh. K. N. Velayudhankutty, joined as Supporting Staff Grade I at C I F T

S / Sh. Gopal Guru, Harisankar Ghasi and Nepal Mahanandia joined as Supporting Staff Grade I at Burla Research Centre.

Sh. T. P. George, Scientist S-1 has been transferred from Goa Research Centre and joined at C I F T Head quarters.

Smt. K. Sarasamma has been appointed substantively to the permanent post of T-2 (Draughtaman)

GLEANINGS FROM OTHER JOURNALS

Fishing of Andhra Coast : Forecast

New fishing harbours are coming up at Visakhapatnam and Nizampatnam (Andhra State) along the East Coast of South India, and there will be considerable increase in the landings of shrimps and fish on account of the introduction of new fishing vessels viz. trawlers and mechanised and non - mechanised fishing vessels. Therefore there is imminent need for installing suitable sea food processing equipments at Visakhapatnam and Nizampatnam to meet the demand.

The Andhra Pradesh Fisheries Corporation has undertaken steps to provide the following sea food processing facilities at their fishing harbours and have called for Global tenders for the execution of the works by 1980 / 1981.

	VISAKHAPATNAM	NIZAMPATNAM
a)	Ice Production : 80 tons / day	25 tons / day
b)	Ice storage : 100 tons	25 tons
c)	Cold storage : 50 tons	25 tons
d)	Quick Plate freezing : 12 tons	1.5 tons
e)	Blast freezing : 12 tons	—
f)	Frozen storage : 600 tons	20 tons
g)	Insulated Trucks : 3 units (5 tons)	1 unit (5 tons)
h)	Shrimp grader : 1 No (20 tons / day)	—

— HINDU

Seafood Exports Up

India exported a record 86,657 tonnes of marine products valued at Rs. 233 . 97 crores during 1978-79 as against 65,967 tonnes valued at Rs. 180 . 95 crores during the previous year, according to a report by the Marine Products Export Development Authority.

The performance during the report year showed a 31.36 per cent increase in terms of quantity and 29 . 30 per cent in value as compared to the previous year. This was against the target of 73,780 tonnes valued at Rs. 226 . 57 crores set for the year.

Japan and USA, were the major buyers of Indian seafoods during the period. There was remarkable increase in the supply of frozen frog-legs and seafoods to west European markets, particularly France and Belgium.

Cochin continued to be the principal port of shipment accounting for 36 per cent of the quantity exported during the period.

— INDIAN EXPRESS

Ocean Research Vessel to be Acquired Soon

The proposal of the Ocean Science and Technology Agency to acquire an oceanographic research vessel from West Germany has been cleared by the Union Cabinet,

The cost of the vessel, including equipment on board is estimated at Rs. 20 crores which will be met from West German aid.

LET'S TALK IT OVER

M/s. Gangadevi marine Fishermen Co-operative Society, Orissa

We have decided to operate 20 mechanised boats (Trawlers) of 32 ft during 1979-80 under financial assistance from A. R. D. C. Therefore, we would like to know the suitable diesel engines of Kirloskar make tested and recommended by your Institute.

CIFT: The followidg engines of Kirloskar make have been tested py this Institute and recommended for 32 ft fishing vessels.

1. RBV 4 M - 53.5 H. P. at 2000 r. p. m.
2. RB 33 M - 46 H. P. at 2000 r. p. m.

(Contd. on Page 14)

BUMPER FISH CATCH

A bumper fish catch mostly brown prawns, has been reported in all ports by fishermen between Mangalore and Cochin this season.

Local fishermen say such a big catch has not been experienced for the past 10 years.

Freezing plants on the Konkan coast cannot cope with the catch due to Shortage of ice and tranposrt facilities and this has resulted in some fish going waste.

Fish prices remained steady throughout the season, from February to May, along the coast. The present price ranges from Rs. 22 to Rs. 36 per kg. There are 7,400 mechanised fishing boats operating on the Konkan coast.

—HINDU

The vessel will help India to survey and exploit the maritime resources in its exclusive economic zone and the continental shelf, it will be used for studies relating to non-living resources with marine geosciences, physical and chemical oceanography and meteorology as major disciplines.

— HINDU

National Bureau to Preserve Fish Species Planned

The Indian Council of Agricultural Research propose to set up a national bureau of fish genetic resources for cataloguing and conserving the available fish species in the country. The bureau will initially have three centres at Dhauli, Kakdwip and Cochin for freshwater, brackishwater and saltwater fishes, respectively.

India's fish fauna is believed to be one of the richest in the world. There are roughly about 1,800 fish species in varied types of water bodies having diverse ecological conditions and widely varying geographical locations. Only a few of these are commercially exploited at present,

—TIMES OF INDIA

Fisheries Projects

Burma is to get a £ 500,000 grant from Britain to proceed with two fisheries projects, The grant is to be allocated to the People's Pearl and Fisheries Corporation to finance the purchase of a fisheries research vessel and of an ice plant to be installed at Kanbe, in the Irrawaddy delta. The vessel and associated equipment will be procured through the Crown Agents.

— Third World Agriculture.

Meet Our Scientists—5

P. N. KAUL

Born 1942 Srinagar (Kashmir); B. Sc. 1960 Univ. of Jammu & Kashmir; BVSc & AH 1964 Punjab Agricultural University.; M. Sc. (VM & AH) 1967 Pb. Agric. Univ.; PhD 1970 Pb. Agric. Univ. Specialization: Extension Education.

Teaching Assistant at PAU, Hissar for 2½ years from 1964 to 1967; Lecturer in Extension for 6 months at PAU, Ludhiana in 1967; Asst. Professor of Extension Education for about one year at Himachal pradesh University, Palampur in 1969-70; Scientist (Extension) for 8 years at Indian Veterinary Research Institute from 1970-1978. Currently working as Scientist (Agri. Extension) at the CIFT and in-charge of Extension, Information and Statistics Division.

Helped in starting the divisions/departments of Extension Education at the Punjab Agricultural University, Hissar, at Himachal Pradesh University, Palampur and at the Indan Veterinary Research Institute, Izatnagar, from the very inception. Helped develop the Operational Research Project for livestock improvement and fodder development at IVRI. Worked with farmers, officials, non-officials, fishermen, etc. for extension work in agriculture, animal sciences and fisheries. Helped in disseminating scientific and technical information through various media to farmers, fishermen and extension workers and drew the attention of crop, animal, and fisheries scientists and administrators towards practicial problems faced by farmers, fishermen and extension workers Organized training courses for officials at various levels on a scientific basis in diverse subjects. Won 2nd prize in the first All-India paper-reading contest in Extension Education. Edited a research journal "Punjab Veterinarian" for nearly three years. Represented the IVRI in the Indian Standards Institution for formulating various standards in connection witn laboratory animals. Member of the Indian Psychological Association and the Indian Society of Extension Education; past member of the Rural Sociological Society.

Taught under graduate courses in Extension Education. Recognized as guide for the doctoral research programmes of the Kerala University and the Cochin University. Contributed to two books dealing with research in Extension Education and has 20 publications. At present working on the adoption of a few items of fisheries technology.

Extra-curricular activities: Represented the PAU at the 9th All-India Inter-University Youth Festival; was member of the College Cricket eleven; 'B' Certificate holder in NCC; hobby is music appreciation.

★

What They Have to Say About CIFT

With the help of Institutions like this India will sooner than later join the front rank of the worlds fishing Nations.

—T. V. PARASURAM, Washington Correspondent, Indian Express.

I am happy that I have been able to visit this apex Institute of research in Fisheries Technology in India.

—T. T. JOSEPH, Secretary to Govt. of Pondicherry

I sincerely hope that a purposeful co-operation will develop between CIFT and PFP for the benefit of fisheries development in India.

—T. SCHARTE, FAO Head Quarters, Rome.

(Contd from Page 12)

3. RB 44 M - 61 H. P. at 2000 r. p. m.

M/s. Swastik Household & Industrial Products, Bombay :

We would request you to let us know the names of manufacturers who can supply Fish Oil for non-edible purpose and if possible, the price indication prevailing at the moment.

CIFT: Please contact the follwing parties for fish oil.

1. The Managing Director, Kerala Fisheries Corporation, Shanmugham Road, Cochin - 682 011.

2. M/s. Mukka Oil and Food Industries, Karnataka Bank Building, Kodiyalbail, Mangalore - 575 003.

Depending upon the quality, the price of fish oil may vary from Rs. 4.50 - Rs. 6/kg.

The Director, Defence Food Research Laboratory, Mysore :

For canning fish in oil what are the oils or mixture of oil which can be used in order to ensure adequate storage life of the product. IS : 4304 for tuna canned in oil stipulates only deodorised refined vegetable oil.

CIFT: Refined and deodorised ground nut oil, cotton seed oil or olive oil can be used for packing oil sardines. A process using ground nut oil and refined sardine oil in 1 : 1 ratio has also been reported in the article 'Use of sardine oil in oil sardine packs. —by D. P. Sen and G. D. Revankar published in Seafood Export Journal, Vol. 3 No. 12, Pages 13-18.

Dircetorate of Fisheries, Govt. of Goa, Daman and Diu, Panaji.

We have taken up the activities of fish processing and intends to establish a "Fish Meal Sausage Plant" to make good use of trash fish. The total raw material used will be to the tone of half tonne to one tonne per day. Please intimate the types of machinery required for the said plant and its capacity.

CIFT: This Institute has developed a rotary drum dryer for production of fish meal of $\frac{1}{2}$ tonne raw material capacity. We have not developed so far a fish meal sausage plant.

Dr. M. S. Swaminathan, [redacted] Secretary, Ministry of Agriculture and Irrigation and former Director General of ICAR on a visit to CIFT is being received by Sh. G. K. KURIYAN, Director.

SINDHU KUMARI
FLOATING FACTORY
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GOLDEN JUBILEE 1929 1979 ICAR

Fish technology newsletter

Vol. 1 No. 12 June 1979

C.F.T.R.I. 22.5.80

CIFT has recommended a large number of fishing gear for the exploitation of the fishery wealth of the inland waters. Picture shows gill net operations in the Hirakud Reservoir, Orissa.

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

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Foreword

EDITORIAL COMMITTEE

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Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

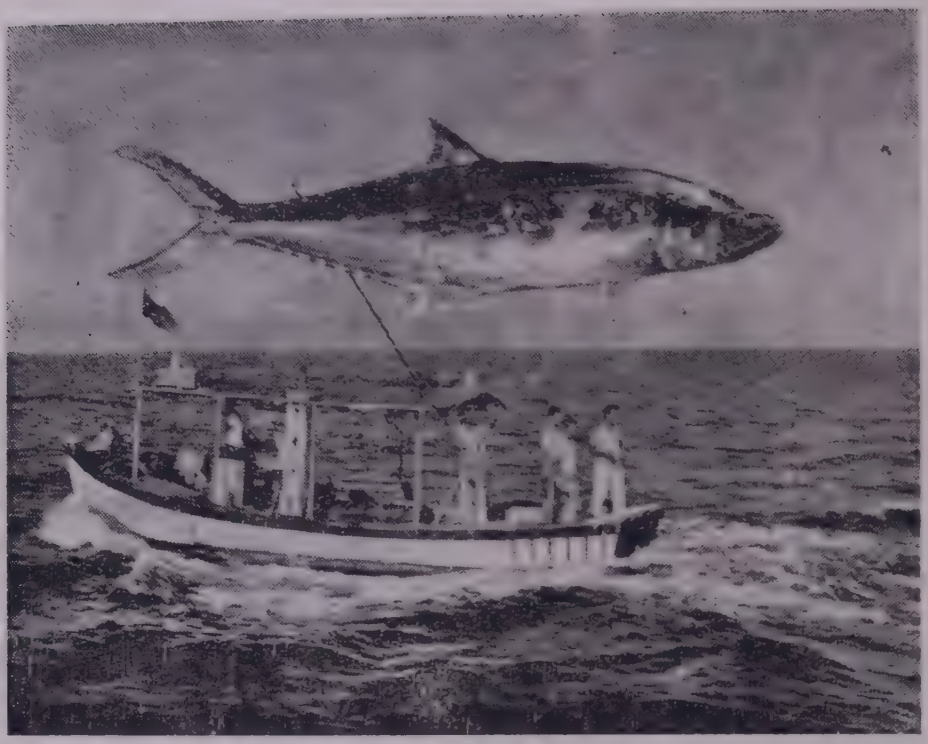
We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

Abbreviation : Fishtech News

DIVERSIFIED FISHING METHODS

Troll - Line



Trolling line, otherwise called whiffing line introduced by this Institute, is an effective fishing method for the capture of fast swimming predatory fishes such as Seer, Barracuda, Tunny and the like.

The efficiency of this fishing method has been established through the findings of CIFT and it can be operated successfully on commercial linnes during the fishing season usually from September to January.

The gear is simple and inexpensive. It consists of a long line of 3 to 4 mm dia. made of Nylon or Polyethylene monofilament having a length of 40 to 45 m. with a brass swivel attached to one end. The other end of the line is free which is used as hauling line attached to the boat during fishing operations. Artificial jigs fitted with double hooks (No. 3 or 4) attached to the swivel through a snood wire. This institute has developed some artificial jigs viz. buffalo horn jigs, feather jigs fish head jigs, plastic jigs which were found to be very effective for the capture of the above fishes.

The fishing method is also very simple required not much specialised skills. A 9. 14 m trawling boat can be used for trolling without any additonal deck alterations. All that is required is two bamboo poles, 5 to 7 lines with jigs, rigged as illustrated in the figure.

Fishing with trolling lines has been found to be ideal from 8 to 12 hrs on sunny days when the sea water is clear blue in colour. The low tide period is also favourable. The speed of the boat should however be 4 to 5 knots during fishing operations. Fishing season lasts from Sept. to Dec. when trolling can be successfully practised with out much investment but with assured good returns.

COMMERCIAL FEASIBILITIES OF INSHORE TRAWLERS OF VERAVAL

Shallow water Trawl catch off Veraval (North West Coast of India) has almost reached a saturation level, beyond which further increase in catch per unit effort or quality wise landings may not be possible. Now, a situation has come,how best the trawl catches can be economically utilised so as to offer a better income for the inshore trawlers of smaller size groups.

At present prawns, Lobsters and quality fishes get a remunerative price at landing. Of late, Cephalopods also get a better price. But this better priced varieties form only a very negligible quantity of the inshore trawl catch say about 5- 15%. About 50-60% on an average of the inshore trawl catch is constituted by miscellaneous catch generally known as 'Dhoma'. This bulk catch is being utilised in an uneconomic way, which in turn offer a low price for the trawlers (20-30 Ps. per kg.)

'Dhoma' is a misnomer which includes besides small Sciaenids, fishes like Lactarius, Synagris, Nemipterus, Saurids, Soles, Silver bellies, Clupeids, Carangids, small ribbon fishes, Crabs, Squilla, small Cephaolpods, uneconomic Prawns etc. etc. If the Present uneconomic trawl catches under the misnomer 'Dhoma' like Lactarius, Synagris, Nempterus, Soles, Clupeids, Carangids and Ribbon fish besides Sciaenids are utilised economically, the trawler revenue can be increased and inshore trawlers need not depend on Prawn catch alone. This will enable them to venture for more fish trawling in the off-shore waters which abound in demersal and column fishes rather than resorting to shrimping alone in the shallow waters.

As the miscellaneous catch (Dhoma) offer a lower price it is being treated as trash on board and not kept for human consumption. As such a common problem with the trawlers is that these miscellaneous catch while bringing to the shore do not keep the quality and get spoiled. Thus the miscellaneous catch is being treated as meant for only fish meal purposes.

Sorting out the catch and keeping in proper containers or fish hold will retain the quality of fishes. To encourage this, trawlers must get remunerative prices for different varieties of fishes.

FAO Fisheries Project in Bay of Bengal

A project for the development of small scale fisheries in the Bay of Bengal funded by the Swedish International Development Authority is to be executed by the Food and Agricultural Organisation from Madras.

Forming part of the FAO's genaral Indian Ocean Fisheries survey and development programme, the project includes experiments which will help the artisan fishermen.

The research activity will cover the Bay area touching Tamil Nadu, Andhra Pradesh, Orissa and West Bengal, Bengladesh, Malaysia and Thailand. International fisheries experts will join the project to develop new techniques of fishing, marketing and processing.

Necessary assistance will be taken from the participating States and other institutions. When new techniques are developed, they will be transferred to the States for enabling small fisherman to augment their resources. There will also be extension and training wings attached to this centre at a later stage.

One of the other major tasks before the FAO experts is to involve more women in the fishing industry. Research will be undertaken on improving the catamaran used by the fishermen.

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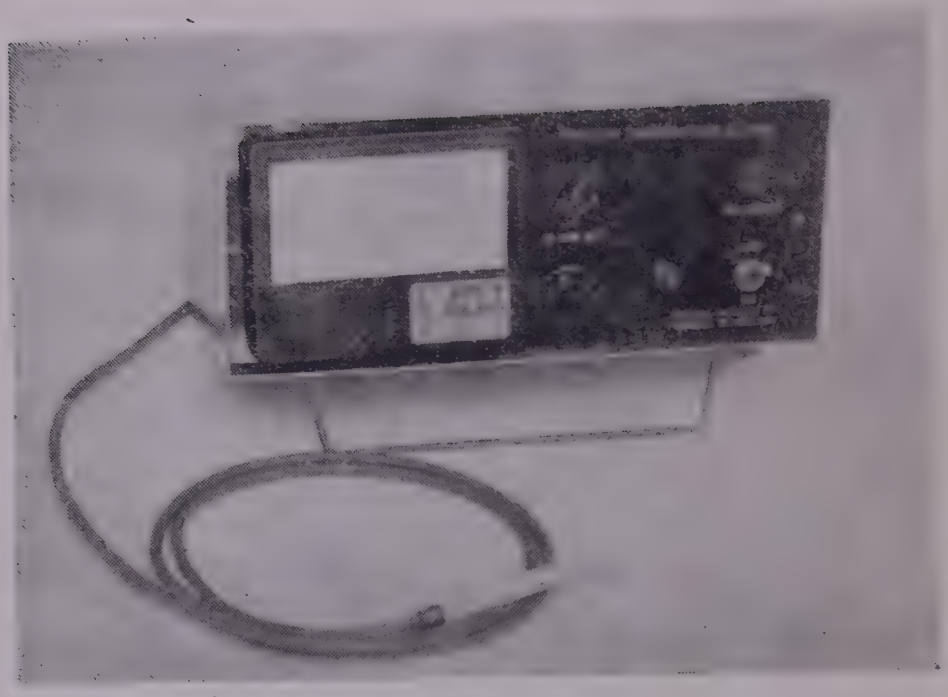
TEMPERATURE MONITOR AND ALARM FOR COLD STORAGES



Central Institute of Fisheries Technology has developed an electronic instrument for the measurement of temprature in the cold storage. The unique speciality of the intrument is that the electronic temperature display meter can be kept far away from its temperature sensing element unlike the conventional types, both being connected by a 2 core ordinary electric cable. The meter can be kept at a convenient place namely in the room of the operator/quality control officer and constant watch can be made. The temperature sensing unit can be kept conveniently anywhere inside the chamber. Several sensers also can be used alongwith a single monitoring unit so that the temperature of different rooms or that of the different places of a room can be measured. This can be done in a single meter by changing the position of a multipoint switch.

An alarm has been provided in the instrument to alert the operator against the deviation of temperature up or down from a pre set range.

The instrument consists of a special quality thermister suitably encased for sensing the temperature. This probe is kept at where the temperature is to be measured. The thermister probe is connected to the meter kept in a remote convenient point by means of ordinary cable. This electronic unit linearised the thermister response to temperature and amplifies the signals using integrated circuit operational amplifier. The final signal is displayed in a wide scale meter. The two controls provided in the front panel help to set the alarm in the required temperature so that when the temperature of the cold storage deviates from this valve, the alarm works. The instrument has been made for operation in the range+30°C to —40°C with an accuracy of ± 1°C. It can be made in any other ranges also as desired. The temperation information can be fed to recorders also for permanent recording of temperatures as a quality check on the performance of the cold storage.

The Institute has made arrangements to supply the instrument to interested parties. They are available in the types namely 'without alarm' and 'with alarm'

★

Meet Our Scientists—6

K. Mahadeva Iyer

Shri K. Mahadeva Iyer, Scientist S-2, is holding charge of the Microbiology Division of the Central Institute of Fisheries Technology, Cochin.

Born 1st November, 1928 at Arukutty, Kerala, he had his education at the University College, Trivandrum from where he took his B. Sc. (Chemistry and Physics) and M.Sc. (Chemistry).

After getting the post-graduate degree in 1951, he worked as Lecturer and Research Scholar at the University of Travancore till November, 1959 when he joined the Central Institute of Fisheries Technology (then Central Fisheries Technological Research Station). He was first attached to the Biochemistry Section where he worked on the quality assessment of fish and prawns as landed from fishing vessels and trawlers. in 1961, he was put in charge of the newly formed Microbiology Section.

Since then Shri. Iyer and his associates had been working on the microbiology of the commercially important fishes of the west coast. This has resulted in obtaining more or less a complete picture of the microbial profile of these fishes for the first time. Later, from 1972 onwards, working in the All India Coordinated Research Project in the Transportation of fresh fish and Utilization of trash fish, he had extensively contributed to the development of peptone (from trash fish) which was found to be a cheap but good substitute for the more expensive commercial peptones.

Shri Iyer is at present engaged in devising suitable microbiological growth media for microbes associated with fishes of marine brakish water and fresh water origin. He has 29 research papers to his credit.

Mr. Iyer had been trained in the handling and identification of *pathogenic* micro-organisms at the King Institute Guindy, Madras in 1961. He had also undergone training in the microbiology of frozen fishery products at the Tokai Regional Fisheries Research Laboratory, Tokyo, Japan under Colombo plan. He also utilized this opportunity to visit important fish processing establishments in that country.

Mr. Iyer had served as Secretary (Official side) of the Instt. joint Council for three years term (1976—1978) and is now a member of the Management Committee of the Institute.

Keenly interested in classical music, he is an approved AIR artist attached to Trichur Station.

★

LET'S TALK IT OVER

M/s Synthetic Fibres & Fabrics, Hyderabad:

We would like to know the specifications worked out by CIFT for the twine so that we can go according to that specifications and further improve our quality.

CIFT: Specifications for Polyethylene monofilament twines for fishing purposes as worked out by this Institute have been brought out as an Indian Standard Specification, IS 6347-1971. This is available from ISI, 9, Bahadur Shah Zafar-Marg, New Delhi-1.

M/s Fish & Singhara Merchants, Damole (M. P.):

Kindly furnish us addresses of a few firms dealing in nylon yarn/twine in the country.

CIFT: Please contact the following:

M/s Sadhana Knitters, Sadhana Rayon House, Dadabhai Naoroji Road, Bombay - 1

M/s Garware Nylons Ltd., Chowpathy Chambers, Sandhurst Bridge, Bombay - 7

M/s Shriram Fibres Ltd., Akashdeep 26-A, Barakhamba Road, New Delhi-1

M/s Fish Net Making Plant, Thungabhadra Board, Thungabhadra Dam, Via Hospet, Bellary District, Mysore.

M/s Nylon Net Factory, Kerala Fisheries Corporation Ltd., Shanmugham Road, Cochin-11.

M/s Mulchand Fisheries, Bombay

We are putting up a fish meal unit at Ratnagiri (Maharashtra). Our fish meal preparation will be from dry fish. We are interested to use heaters before grinding the dry fish.

We will be very thankful to you if you suggest us know-how for the heating method or if any one has developed the method and available in the market.

CIFT: The heating of fish meal to destroy Salmonella, if any, can be done at a temp. between 58-60°C. you may enquire with M/s Turuer Hoare & Co., Bombay or M/s Gansons Ltd., Bombay for suitable heaters. Enquiry may also be made with Excell Engineering Industries-I286, Kanji Diwan Lane, Raja Mohta Street, Kalupur' Ahmedabad—1. It is also advisable to see the dryer available with M/s Maharashtra Fisheries Devt. Corporation Ltd., Sassoon Dock, Colaba, Bombay—5.

M/s Gujarat Fisheries Central Co-operative Association Ltd, Ahmedabad;

We are interested in obtaining the details on the nets designed by CIFT.

CIFT: This Institute has designed improved types of nets as below:

1. Trawl nets & otter board for mechanised boats of sizes 25 ft, 30 ft, 32 ft, 36 ft, 40 ft, 45 ft, 50 ft

2. Gill nets for 25 to 32 ft boats

3. Troll lines for 30—36 ft boats

4. Purse seine for 32 ft boat

M/s Venkateswara Engineering works, Kakinada:

Kindly let us know about the Trawl winch designs available with CIFT.

CIFT: Designs of the following trawl winches are available with CIFT:

AF 18 for 30 ft—32 ft boats

AF 20 series for 36 ft — 40 ft boats

AF 23 series for 40 ft — 50 ft boats

AF 25 series for 55 ft — 60 ft boats

GLEANINGS FROM OTHER JOURNALS

Indian Shrimp Fares Better in US Markets

The "Salmonella" content in the Indian shrimp imported in to the United States has come down by a "considerable" amount in recent months. ("Salmonella" is a parasite which causes food poisoning).

The quality of the Indian shrimp is also much favourable now compared to those coming in to U.S. markets from other countries.

This evaluation is contained in a communication received recently by the Marine products Export Development Authority from the Indian embassy in Washington.-

— HINDU

Steps to Increase Fish Production

Kerala is to go in for purse seine operation in a big way to exploit fully the abundant shoals of sardine and mackerel off its coast.

To begin with 50 boats will be introduced within six months and their number will be increased gradually to 400.

Each boat is expected to bring in a catch of 1,000 tonnes in a year.

By introducting the purse seine operation and mechanising about 40,000 country crafts over a period of five to 10 years the State fish production is to be raised to over 10-lakh tonnes, according to the Fisheries Minister, Mr. K. Avukkader-Kutty Naha.

— HINDU

Shrimp Export: US Stand Won't Daunt Delhi

While New Delhi is not particularly worried over the reported US threat to ban import of Indian shrimps on the ground that it is contaminated, efforts are on to ensure that bilateral trade relations are not vitiated by this controversy.

The Commerce Ministry is hopeful that the efforts will finally succeed. When the matter is taken up at the highest level, a mutually agreed formula may be found which will persuade the US authorities not to stop further imports of frozen shrimps from this country.

The complaint of the US Food and Drug Administration is that Indian shrimp is contaminated with salmonella, a parasite which poisons food. When the administration intensified last year inspection of Indian shipments, several consignments of frozen shrimps were found to be contaminated. This even resulted in diversion of some consignments to other countries.

India's contention is that the US authorities have raked up an avoidable controversy.

For one thing, salmonella cannot contaminate cooked food articles since it does not survive in a temperature of 50 degrees centigrade. For another, the US authorities are concerned over contamination of shrimp though they hardly bother about the salmonella content in other articles like poultry and meat. It is also pointed out that no large-scale food poisoning due to salmonella has been reported so far in the United States.

To sort out the issue, the Marine Products Export Development Authority sent a delegation to America in last February. At its instance, a US delegation was in India in the last week of May for an on-the-spot study.

The delegation found that contamination occured during handling of the shrimp in peeling sheds. The parasite does not survive in saline water.

India, therefore, is planning to ensure the possible hygienic conditions for peeling sheds. This, however, will be a time-consuming process considering the vastness of the country's coast belt where the seafood industry is located.

One of the proposals now under consideration is to stamp the shrimp cartons with the coded mark of identification. With this it is said, it will be possible for the US authorities to single out the contaminated consignment rather rejecting the entire shipment even when only a few cartons are found affected by salmonella.

INDIAN EXPRESS

RECORD IN PRAWN HARVEST

Production of 480 kg of prawn per hectare in 65 days, claimed to be a new record in harvest period has been achieved by a farmer in the Vallarpadam Island, near Cochin.

The prawn culture programme was sponsored by the Marine products Export Development Authority (MPEDA) and financed by a land mortgage bank.

Within a period of two months and fivc days, 560 kg of prawns (Naran Variety) which fetched Rs. 10,880 were harvested from the farmer's 1.16 hectare pond.

The existing record of 511 kg of prawn per hectare in 90 days was harvested from a pond in Cochin sometime ago.

— HINDU

APPOINTMENTS

S/shri, Badrinarayan Guru and P. K. Janardhanan joined as S. S. Grade 1 and Jr. Clerk respectively at Burla Research Centre

shri. K. S. Ganesan joined as Technician—7 (Workshop) at CIFT, Cochin

Smt. Alice M. Joseph, Sr. Clerk, CIFT was promoted as Assistant.

shri. Varghese Paul, Superintendent, CIFT, was promoted as Assist. Administrative Officer.

FISHERIES COLLEGE FOR PANANGAD

A fisheries degree college with 30 seats will start functioning in Kerala from this year.

sh. A.L. Jacob, Minister of Agriculture, told newsmen that it would be located at Panangad in Ernakulam district and would function in temporary sheds for the present. A 60 acre plot had been located for the college.

The Minister said 10 students would be selected for admission on the basis of merit, nine seats reserved for fishermen and another 11 for other communities. The minimum qualification for admission would be pre-degree with zoology as the main subject.

The fisheries college could be affiliated to the Kerala Agricultural University, he said

—HINDU

CIFT ASSISTANCE FOR M. P. E. D. A.

The Marine Products Export Development Authority has launched an Inspection boat for its prawn farming project.

Designed and technically assisted for its construction by the CIFT, the boat costs Rs. 78,500/- and has a cruising speed of 8 - 10 knots.

To meet the special requirements, the boat was designed to have raised deck forward and aft.

The overall dimension are as follows :

Length overall	:	25 ft/7.63 m
Length datum waterline	:	25 ft/7.02 m
Beam, maximum over planking	:	7 ft/2"/2.18 m
Beam datum water line	:	7 ft/2.13 m
Draft aft, at datum W. I. including Keel	:	2 ft 6"/0.746 m
Displacement at datum waterline	:	98 cft/2.77 m3 (2.8 tons)
Engine	:	Ruston Mark 2 YWAM two cylinder, Vertical, aircooled marine, diesel engine, capable of developing 23.5 BHP was fitted into the boat

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CIFT MANAGEMENT COMMITTEE

The CIFT Management Committee has been reconstituted with shri. G. K. Kuriyan, Director, CIFT as Chairman and shri K. M. Mathai, Sr. Administrative Officer, CIFT as Member-Secretary. The tenure of the Committee is three years. Following are the other members of the Committee.

1. Dr. R. Raghu Prasad, A. D. G. (Fisheries), ICAR

2. Dr. C. C, Panduranga Rao, Scientist S—3, Kakinada

3. shri. K. M. Iyer, Scientist S—2, CIFT

4. shri. T. K. Govindan, Scientist S—2, CIFT

5. shri. M. Arul James, Scientist S—1, CIFT

6. shri. M. Jayaraj, Director of Fisherics, Karnataka

7. shri. S. N. Rao, Director of Fisheries, Kerala

8. shri. S. Krishna Moorthy, Chief Executive Officer, Khadi and Village Board

9. Dr. U. P. Bhaskaran, Director of Research, Kerala Agricultural University, Mannuthy

10. shri. C. Cherian, President, Seafood Exporters Association of India

11. shri. A. Ramadhas, Accounts Officer, CPCRI, Kasaragod

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What They Have to Say About CIFT

Quite an interesting and fascinating institution.

S. G. SUNDARAM, Chairman,
MPEDA

A most impressive effort in local resource development, from which we in Guyana can learn a great deal.

JOSHNA R. RAMSAMMY,
University of Guyana

The Institute is very educative and gives new dimensions to a layman's knowledge about fishing technology.

JUSTICE HARISWARUP,
Lucknow High Court, U. P.

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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

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